# SECTION EXL
# EXTERIOR LIGHTING SYSTEM

## CONTENTS

### LED HEADLAMP

# PRECAUTION

## PRECAUTIONS

### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000011256217

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

**WARNING:**

**Always observe the following items for preventing accidental activation.**

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

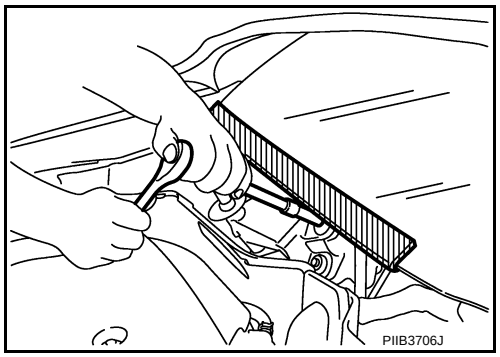
**Always observe the following items for preventing accidental activation.**

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

### Precaution for Procedure without Cowl Top Cover

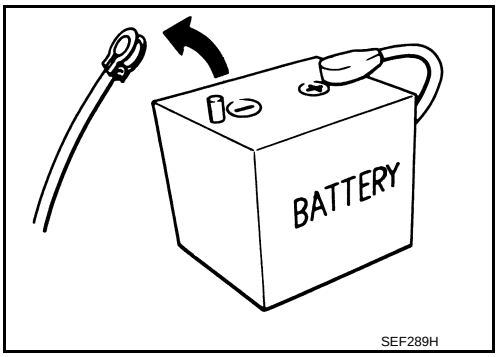
INFOID:0000000011517942

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.



## Precautions for Removing Battery Terminal

INFOID:0000000011256219



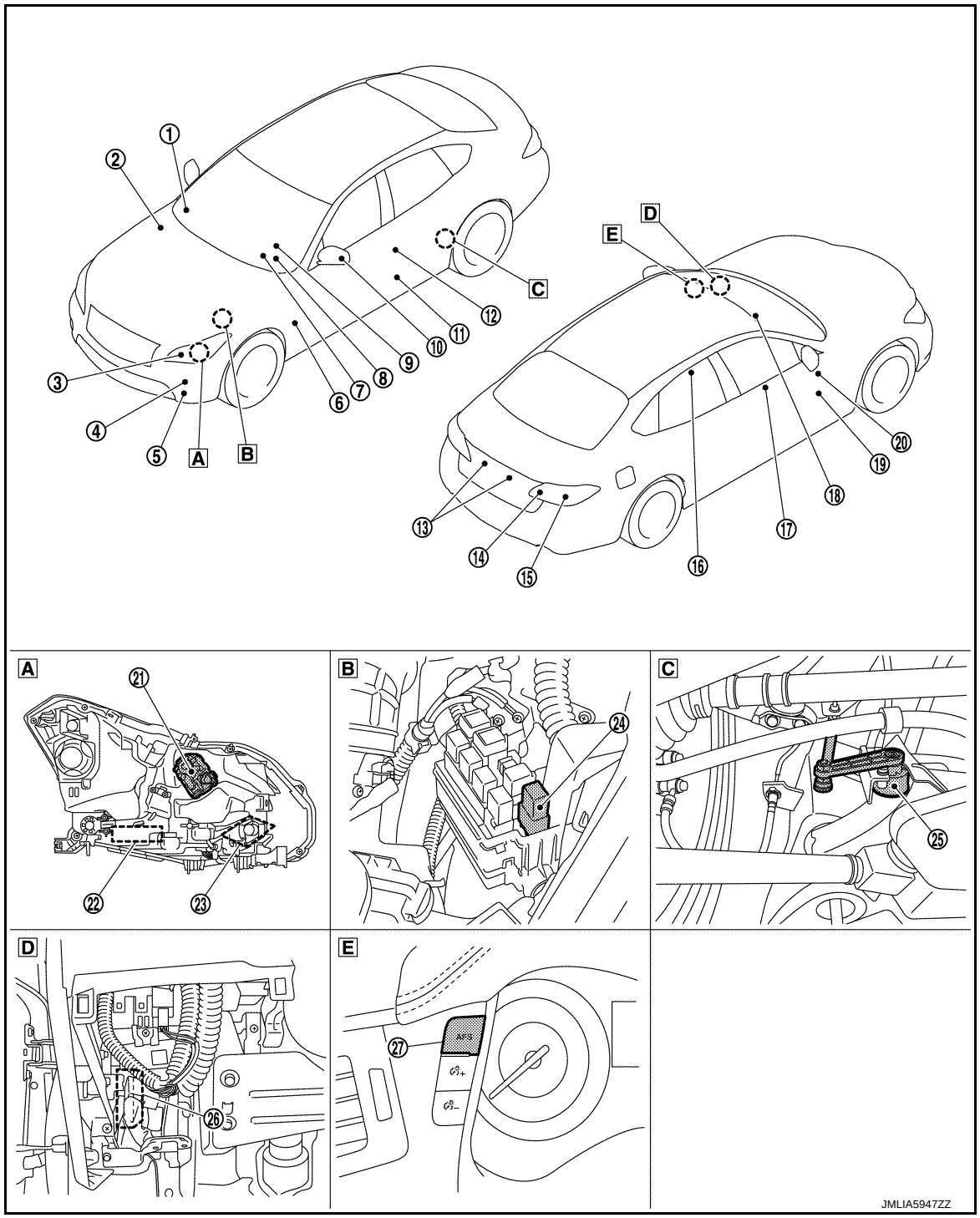

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
  **NOTE:**
  ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  **NOTE:**
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  **NOTE:**
  The removal of 12V battery may cause a DTC detection error.

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000011460128




A Front combination lamp (Back)
B Engine room (LH)
C Rear suspension member (LH)
D Behind the instrument driver lower panel
E Cluster lid A

| No. | Component | | Function |
|---|---|---|---|
| ① | Optical sensor | | Refer to EXL-12, "Optical Sensor". |
| ② | IPDM E/R | | • Controls the integrated relay and daytime running light relay, and supplies voltage to the load according to the request from BCM via CAN communication.<br>• IPDM E/R transmits low beam status signal to AFS control unit via CAN communication.<br>• Refer to PCS-5, "IPDM E/R : Component Parts Location" for detailed installation location. |
| ③ | Front combination lamp | Headlamp (HI) (LED headlamp) | Refer to EXL-157, "Bulb Specifications" and EXL-9, "FRONT COMBINATION LAMP : LED Headlamp". |
| | | Headlamp (LO) (LED headlamp) | |
| | | Parking lamp (Upper side) / Daytime running light (Upper side) | Refer to EXL-157, "Bulb Specifications". |
| | | Parking lamp (Lower side) / Daytime running light (Lower side) | |
| | | Front side marker lamp | |
| ④ | Front turn signal lamp | | Refer to EXL-157, "Bulb Specifications". |
| ⑤ | Front fog lamp | | Refer to EXL-157, "Bulb Specifications". |
| ⑥ | BCM | | • Detects each switch condition by the combination switch reading function.<br>• Exterior lamp ON/OFF is judged from each signal, and then a request is transmitted to IPDM E/R (via CAN communication) to turn each relay ON/OFF.<br>• It also transmits a request to the combination meter (via CAN communication) to turn indicator lamp and warning (buzzer) ON/OFF.<br>• Blinks the turn signal lamp and hazard warning lamp according to the each switch condition.<br>• Requests the turn signal indicator lamp blink to the combination meter via CAN communication.<br>• Requests the turn signal operating sound ON to the combination meter via CAN communication.<br>• Refer to BCS-4, "BODY CONTROL SYSTEM : Component Parts Location" for detailed installation location. |
| ⑦ | Combination meter | | • Turns the indicator lamp and warning (buzzer) ON/OFF according to the request from BCM via CAN communication.<br>• Inputs headlamp warning signal from LED headlamp control module and turns headlamp warning ON.<br>• Turns the AFS OFF indicator lamp ON/OFF/Blinking according to the request from AFS control unit via CAN communication.<br>• Blinks the turn signal indicator lamp and outputs the turn signal operating sound with integrated buzzer according to the request from BCM via CAN communication.<br>• Combination meter transmits vehicle speed signal to BCM, high beam assist control module and AFS control unit via CAN communication.<br>• Combination meter transmits parking brake switch signal to BCM via CAN communication. |
| ⑧ | Combination switch | | Refer to BCS-7, "COMBINATION SWITCH READING SYSTEM : System Description". |
| ⑨ | Steering angle sensor* | | • Steering angle sensor transmits steering angle signal to AFS control unit via CAN communication.<br>• Refer to BRC-10, "Component Parts Location" for detailed installation location. |
| ⑩ | Side turn signal lamp | | Refer to EXL-157, "Bulb Specifications". |
| ⑪ | Door switch | | Refer to DLK-12, "DOOR LOCK SYSTEM : Component Description". |

| No. | Component | | Function |
|---|---|---|---|
| ⑫ | Door request switch | | Refer to DLK-12, "DOOR LOCK SYSTEM : Component Description". |
| ⑬ | License plate lamp | | Refer to EXL-157, "Bulb Specifications". |
| ⑭ | Rear combination lamp (Trunk lid side) | Tail lamp | Refer to EXL-157, "Bulb Specifications". |
| ⑮ | Rear combination lamp (Body side) | Tail lamp | Refer to EXL-157, "Bulb Specifications". |
| | | Rear side marker lamp | |
| | | Rear turn signal lamp | |
| ⑯ | Air bag diagnosis sensor unit | | • Air bag diagnosis sensor unit transmits air bag signal to BCM.<br>• Refer to SRC-7, "Component Parts Location" for detailed installation location. |
| ⑰ | Transmission assembly* | Transmission range switch | Refer to TM-13, "A/T CONTROL SYSTEM : Transmission Range Switch". |
| | | TCM | • TCM transmits shift position signal to AFS control unit via CAN communication.<br>• Refer to TM-11, "A/T CONTROL SYSTEM : Component Parts Location" for detailed installation location. |
| ⑱ | Multifunction switch (Hazard switch) | | Refer to EXL-12, "Hazard Switch". |
| ⑲ | ECM | | • ECM transmits engine status signal to BCM via CAN communication.<br>• ECM transmits engine speed signal to AFS control unit via CAN communication.<br>• Refer to EC-24, "ENGINE CONTROL SYSTEM : Component Parts Location" (VQ37VHR engine models) or EC-553, "ENGINE CONTROL SYSTEM : Component Parts Location" (VK56VD engine models). |
| ⑳ | Remote keyless entry receiver | | Refer to DLK-12, "DOOR LOCK SYSTEM : Component Description". |
| ㉑ | Front combination lamp | Headlamp aiming motor* | Refer to EXL-11, "FRONT COMBINATION LAMP : Headlamp Aiming Motor". |
| ㉒ | | Swivel actuator* | Refer to EXL-10, "FRONT COMBINATION LAMP : Swivel Actuator". |
| ㉓ | | LED headlamp control module | Refer to EXL-10, "FRONT COMBINATION LAMP : LED Headlamp Control Module". |
| ㉔ | Daytime running light relay | | Daytime running light relay is controlled by IPDM E/R and supplies the voltage to daytime running light. |
| ㉕ | Height sensor* | | Refer to EXL-12, "Height Sensor". |
| ㉖ | AFS control unit* | | Refer to EXL-11, "AFS Control Unit". |
| ㉗ | Meter control switch (AFS switch)* | | Refer to EXL-13, "AFS Switch". |

*: With active AFS

# FRONT COMBINATION LAMP

## FRONT COMBINATION LAMP : LED Headlamp

INFOID:0000000011460129

### OUTLINE

- Semiconductor device (Light emitting diode: LED), which is illuminated when forward bias electric voltage is applied, is adopted as the source of light instead of halogen bulb or xenon bulb.
- Comparing to halogen headlamp or xenon headlamp, LED headlamp is electrically power saving, durable, and is illuminated in the similar color to the sunlight. Bright, natural, and eye-friendly visibility can be obtained.

### PRECAUTIONS FOR TROUBLE DIAGNOSIS

Representative malfunction examples are; “Light does not turn ON”, “Light blinks”, and “Brightness is inadequate.” Such malfunctions, however, occasionally by occur LED control module malfunction or lamp case malfunction. Specify the malfunctioning part with diagnosis procedure.

**CAUTION:**

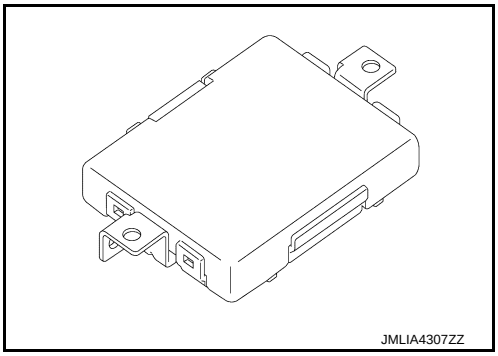
- **Never touch the harness, LED headlamp control module, the inside and metal part of lamp when turning the headlamp ON or operating the lighting switch, for preventing electrical shock.**
- **Never work with wet hands, for preventing electrical shock.**
- **Never perform LED headlamp control module circuit diagnosis with a circuit tester or an equivalent.**
- **Temporarily install the headlamps on the vehicle. Always connect power supply to the connector (vehicle side) when checking ON/OFF status.**
- **Disconnect the battery negative terminal before disconnecting the lamp socket connector or the harness connector.**
- **Check for fusing of the fusible link(s), open around connector, short, disconnection if the symptom is caused by electric error.**
- **Always check for deformation or hole of headlamp housing and engagement of bulb cover. Otherwise, water may enter into headlamp because of damage of headlamp housing and contact to LED headlamp control module connector. The normal operation may be inhibited when short circuit to power supply is detected.**

**NOTE:**
Turn the switch OFF once before turning ON, if the ON/OFF is inoperative.

## FRONT COMBINATION LAMP : LED Headlamp Control Module

INFOID:0000000011460130

- LED headlamp control module is integrated in the front combination lamp and turns the LED headlamp ON according to the request from IPDM E/R.
- Outputs the headlamp warning signal to the combination meter.

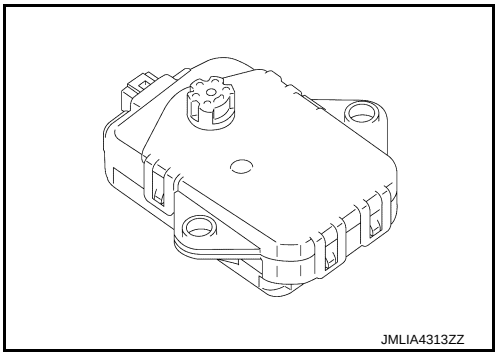

JMLIA4307ZZ

## FRONT COMBINATION LAMP : Swivel Actuator

INFOID:0000000011460131

### DESCRIPTION

- The swivel actuator is installed in the front combination lamp.
- Swivel actuator consists of the swivel motor for headlamp swivel operation, the swivel position sensor which detects the headlamp swivel angle, and LCU (Local Control Unit) which communicates with AFS control unit via LIN (Local Interconnect Network).


JMLIA4313ZZ

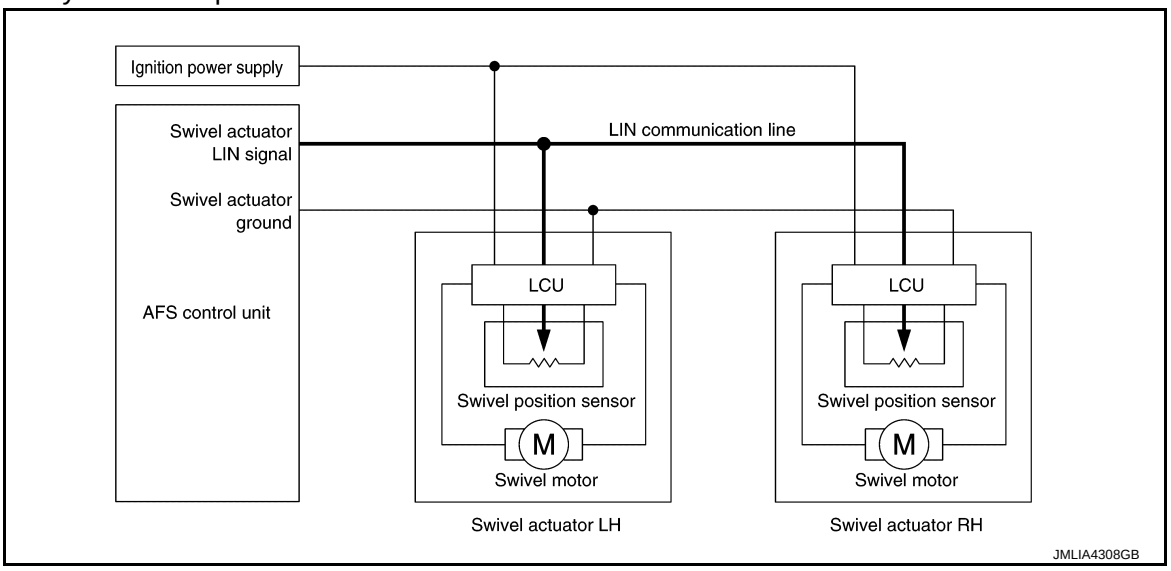
### STRICTIRE AND OPERATION

Swivel Motor
- The swivel motor is the DC motor.
- The swivel motor drives headlamp according to the drive signal from LCU.

Swivel Position Sensor
The swivel position sensor detects the headlamp swivel angle to transmit the swivel position sensor signal to LCU.

LCU (Local Control Unit)
- The LCU is integrated in left and right swivel actuators so as to perform the multiplex communication control (LIN) between left and right swivel actuators in one communication line.

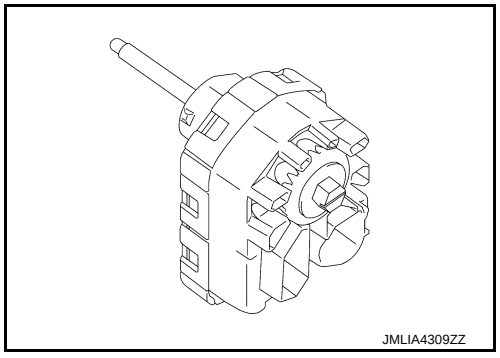
- When each LCU receives a drive signal from AFS control unit, it drives the swivel motor and allows headlamp swivel operation. Also, it sends the swivel position signal of headlight to AFS control unit, which is detected by the swivel position sensor.




## FRONT COMBINATION LAMP : Headlamp Aiming Motor

INFOID:0000000011460132

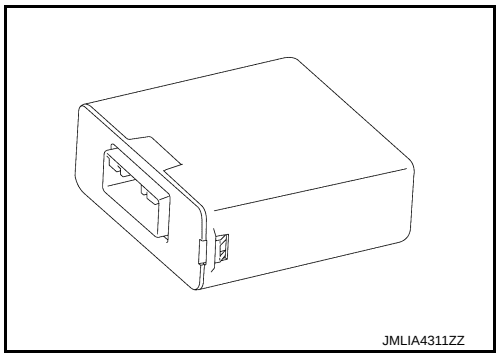
- Headlamp aiming motor is integrated in the front combination lamp.
- Headlamp aiming motor adjusts the headlamp light axis upward and downward according to input drive signal from AFS control unit.




## AFS Control Unit

INFOID:0000000011460134

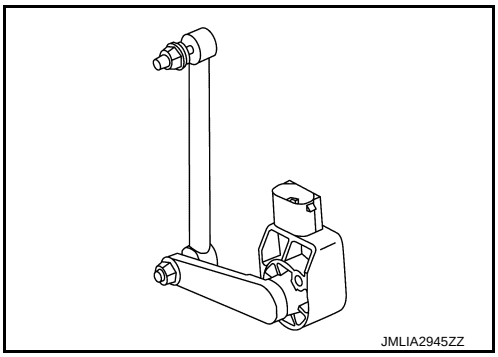
- AFS control unit judges the vehicle condition from each signal. AFS control unit controls AFS control (swivel control) and the headlamp aiming control.
- Self-diagnosis function is integrated in AFS control unit. Diagnosis of AFS can be performed quickly. Also, if AFS control unit detects a specific DTC, the AFS control unit requests the combination meter to blink the AFS OFF indicator lamp (via CAN communication).



## Height Sensor

INFOID:0000000011460136

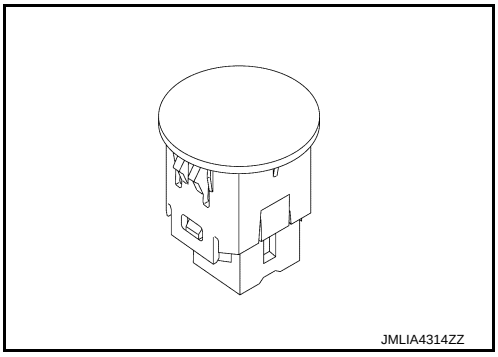
- Height sensor is installed in rear suspension member (LH).
- Height sensor detects the vehicle rear height deviation with sensor lever, and transmits the detected value as a height sensor signal to AFS control unit.

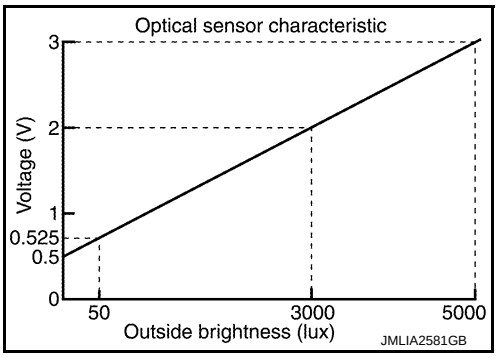



## Optical Sensor

INFOID:0000000011460137

Optical sensor converts the outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.

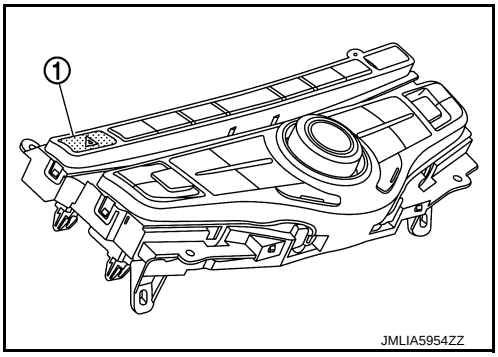



## Hazard Switch

INFOID:0000000011460138

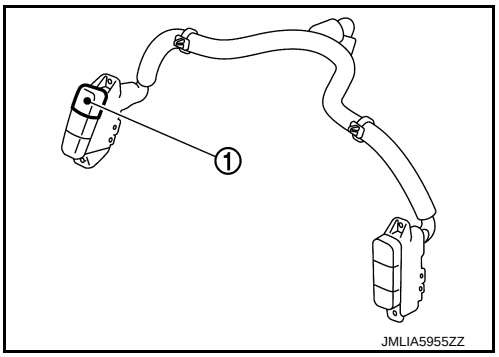
Hazard switch ① is built in to the multifunction switch. Inputs the hazard switch ON/OFF signal to BCM.



## AFS Switch

INFOID:0000000011540840

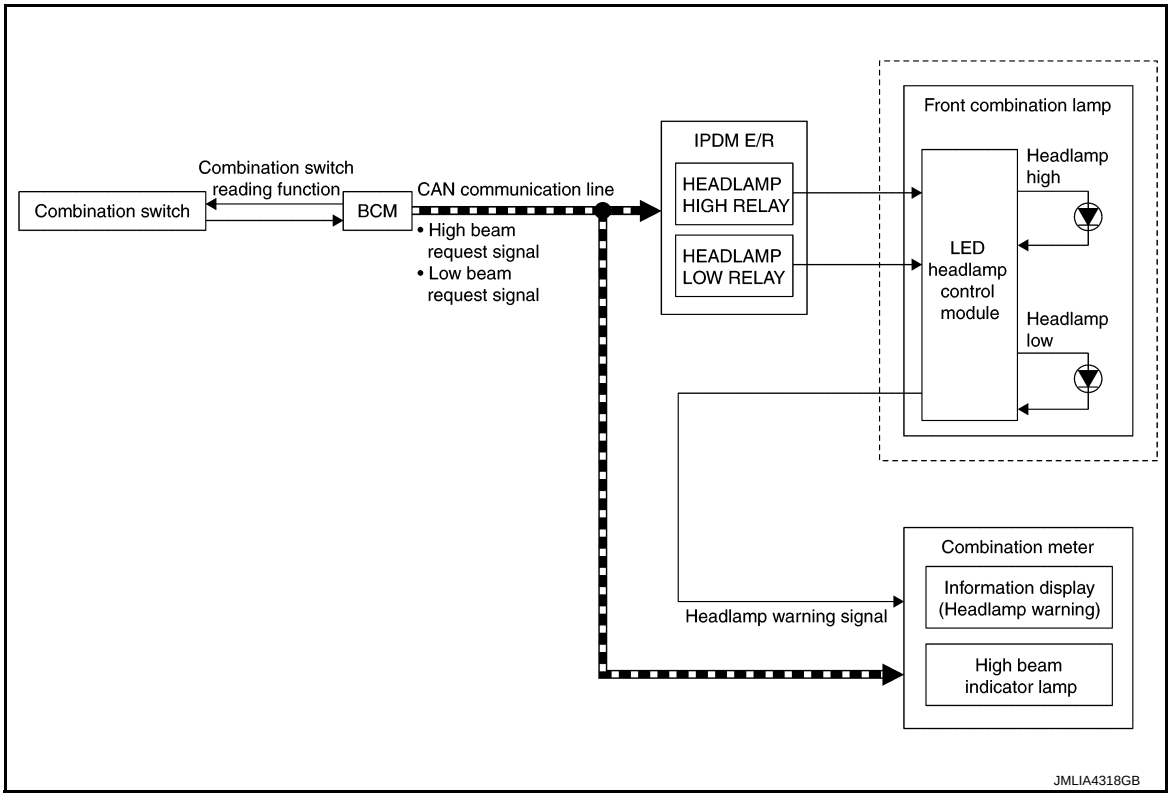
AFS switch ① is built in to the meter control switch. Inputs the AFS switch signal to AFS control unit.



# SYSTEM
## HEADLAMP SYSTEM
### HEADLAMP SYSTEM : System Description

INFOID:0000000011460139

SYSTEM DIAGRAM




OUTLINE

Headlamp is controlled by combination switch reading function and headlamp control function of BCM, and relay control function of IPDM E/R.

HEADLAMP (LO) OPERATION

- BCM detects the combination switch condition with the combination switch reading function.
- BCM transmits the low beam request signal to IPDM E/R with CAN communication according to the headlamp (LO) ON condition.

Headlamp (LO) ON condition
- Lighting switch 2ND
- Lighting switch AUTO (Only when the illumination judgment by auto light system is ON. For details, refer to EXL-15, "AUTO LIGHT SYSTEM : System Description".)
- Lighting switch PASS

- IPDM E/R turns the integrated headlamp low relay ON according to low beam request signal and supplies power supply to LED headlamp control module.
- LED headlamp control module turns the headlamp (LO) ON according to the power supply from IPDM E/R.

HEADLAMP (HI) OPERATION

- BCM transmits the high beam request signal to IPDM E/R and the combination meter with CAN communication according to the headlamp (HI) ON condition.

Headlamp (HI) ON condition
- Lighting switch HI with the lighting switch 2ND
- Lighting switch HI with the lighting switch AUTO (Only when the illumination judgment by auto light system is ON. For details, refer to EXL-15, "AUTO LIGHT SYSTEM : System Description".)
- Lighting switch PASS

- IPDM E/R turns the integrated headlamp high relay ON according to high beam request signal and supplies power supply to LED headlamp control module.

- LED headlamp control module turns the headlamp (HI) ON according to the power supply from IPDM E/R.
- Combination meter turns the high beam indicator lamp ON according to the high beam request signal.

### HEADLAMP WARNING OPERATION

- BCM transmits the low beam request signal to combination meter with CAN communication when headlamp (LO) ON judgment.
- When LED headlamp control module detects a malfunction of headlamp (LO) circuit, headlamp warning signal is output to combination meter.
- When the ignition switch is ON and the low beam request signal is received, if the headlamp warning signal is input, the headlamp warning is displayed on the information display.

**NOTE:**

When the headlamp warning signal is received, the most likely cause is a malfunction of the following.

- Headlamp (LO) power supply/ground circuit
- Headlamp warning signal circuit
- Front combination lamp
  - LED [Headlamp (LO)]
  - LED headlamp control module
  - Harness

## HEADLAMP SYSTEM : Fail-safe

INFOID:0000000011460141

### CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With BCM

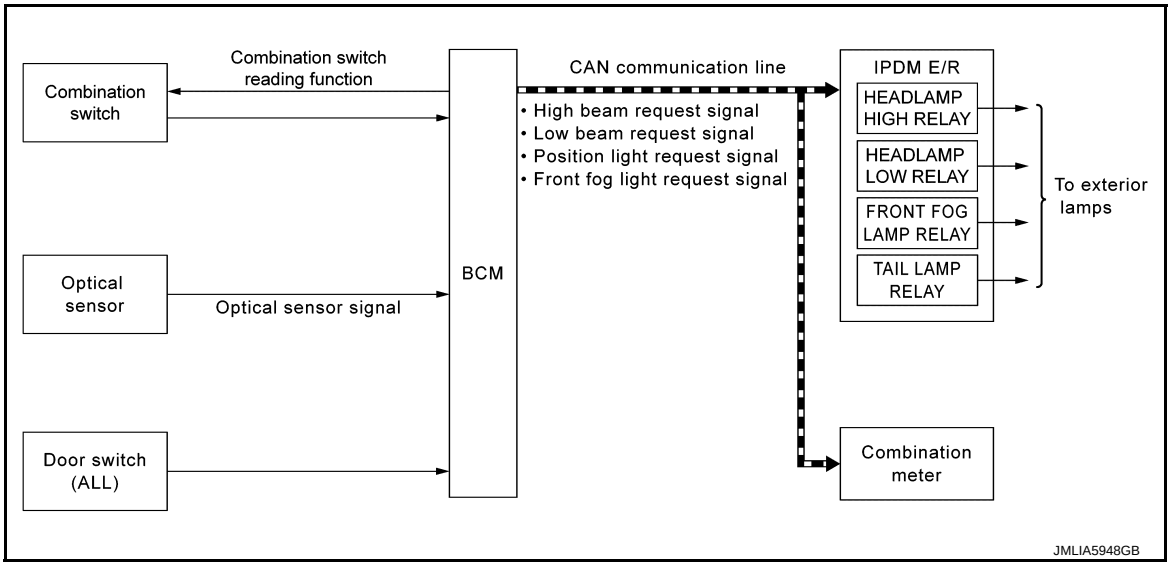
| Control part | Fail-safe operation |
|---|---|
| Headlamp | • Turns ON the headlamp low relay when the ignition switch is turned ON<br>• Turns OFF the headlamp low relay when the ignition switch is turned OFF<br>• Headlamp high relay OFF |

# AUTO LIGHT SYSTEM

## AUTO LIGHT SYSTEM : System Description

INFOID:0000000011460142

### SYSTEM DIAGRAM




### OUTLINE

- Auto light system is controlled by each function of BCM and IPDM E/R.

Control by BCM

- Combination switch reading function
- Auto light function [Standard / twilight lighting function (Except for Canada)]

- Wiper linked auto lighting function (Except for Canada)
- Fog override function (Factory setting is OFF)
- Delay timer function

Control by IPDM E/R
- Relay control function

• Auto light system has the auto light function [Standard / twilight lighting function (Except for Canada)], wiper linked auto lighting function (Except for Canada), fog override function and delay timer function.
- Auto light function automatically turns ON/OFF the exterior lamps*, depending on the outside brightness.
- Wiper linked auto lighting function automatically turns ON/OFF the exterior lamps* when the lighting switch is in the AUTO position, according to a front wiper operation.
- Fog override function turns ON the exterior lamps regardless of outside brightness, when front fog lamp switch is turned from OFF to ON while ignition switch is in ON position and lighting switch is in AUTO position.

*: Headlamp (LO/HI), front fog lamp, parking lamp, license plate lamp, side marker lamp and tail lamp.

**NOTE:**
• Headlamp (HI) depend on the combination switch condition.
• Front fog lamp depend on the front fog lamp switch condition (Only when the fog override function setting is OFF).
• Front fog lamp does not turn ON when the headlamp (HI) ON condition.

## AUTO LIGHT FUNCTION

For Canada, twilight lighting function is not applicable.
• BCM detects the combination switch condition with the combination switch reading function.
• BCM supplies voltage to the optical sensor when the ignition switch is turned ON.
• Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.
• When ignition switch is turned ON, BCM detects outside brightness from the optical sensor signal and judges ON/OFF condition of each exterior lamp, depending on the outside brightness condition [standard or twilight (Except for Canada)].
• BCM transmits each request signal to IPDM E/R and combination meter via CAN communication, according to ON/OFF condition by the auto light function.

**NOTE:**
• ON/OFF of twilight lighting function can be changed using CONSULT. Refer to EXL-26, "HEADLAMP : CONSULT Function (BCM - HEAD LAMP)".
• As to ON/OFF timing, the sensitivity depends on settings. The settings can be changed using CONSULT. Refer to EXL-26, "HEADLAMP : CONSULT Function (BCM - HEAD LAMP)".

## WIPER LINKED AUTO LIGHTING FUNCTION (EXCEPT FOR CANADA)

BCM turns each exterior lamp ON when detecting 4 operations of the front wiper while the light switch is in AUTO position.

**NOTE:**
• BCM turns OFF the headlamps 3 seconds after the front wiper switch is turned OFF.
• The setting of the wiper linked auto lighting function can be changed using CONSULT. Refer to EXL-26, "HEADLAMP : CONSULT Function (BCM - HEAD LAMP)".

## FOG OVERRIDE FUNCTION (FACTORY SETTING IS OFF)

When front fog lamp switch is turned to ON while ignition switch is in ON position and lighting switch is in AUTO position, BCM turns ON exterior lamps* regardless of outside brightness.

*: Headlamp (LO/HI), front fog lamp, parking lamp, license plate lamp, side marker lamp and tail lamp.

**NOTE:**
• Headlamp (HI) depend on the combination switch condition.
• Front fog lamp does not turn ON when the headlamp (HI) ON condition.
• ON/OFF of fog override function can be changed using CONSULT. Refer to INL-15, "INT LAMP : CONSULT Function (BCM - INT LAMP)".

## DELAY TIMER FUNCTION

• BCM turns the headlamp (LO) OFF depending on the vehicle condition with the auto light function when the ignition switch is turned OFF.
- Turns the headlamp (LO) OFF 5 minutes after the ignition switch is turned OFF.
- Turns the headlamp (LO) OFF 5 minutes after detecting that any door opens. (Door switch ON).
- Turns the headlamp (LO) OFF a certain period of time* after closing all doors. (Door switch ON → OFF).

• Delay timer function turns OFF, when the ignition switch is other than OFF or the lighting switch is other than AUTO.

*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to EXL-26, "HEADLAMP : CONSULT Function (BCM - HEAD LAMP)".

**NOTE:**

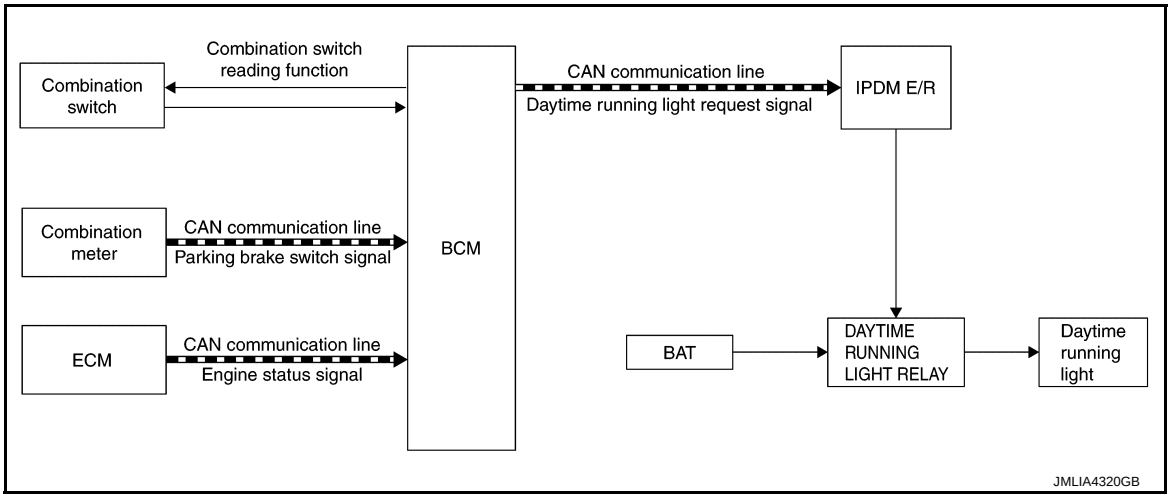
When any position other than the lighting switch AUTO is set, the auto light system function switches to the exterior lamp battery saver function.

# DAYTIME RUNNING LIGHT SYSTEM

## DAYTIME RUNNING LIGHT SYSTEM : System Description

INFOID:0000000011460147

### SYSTEM DIAGRAM




### OUTLINE

Daytime running light is controlled by daytime running light control function and combination switch reading function of BCM, and relay control function of IPDM E/R.

### DAYTIME RUNNING LIGHT OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM detects vehicle condition depending on the following signals.
- Engine status signal (received from ECM via CAN communication)
- Parking brake switch signal (received from combination meter via CAN communication)
- BCM transmits the daytime running light request signal to IPDM E/R via CAN communication according to the daytime running light ON condition.

Daytime running light ON condition

- Engine running with the parking brake released, and any following conditions are satisfied.
- Lighting switch OFF
- Lighting switch AUTO (Only when the illumination judgment by auto light system is OFF. For details, refer to EXL-15, "AUTO LIGHT SYSTEM : System Description".)
- IPDM E/R turns the daytime running light relay ON, and turns the daytime running light ON according to the daytime running light request signal.

## DAYTIME RUNNING LIGHT SYSTEM : Fail-safe

INFOID:0000000011460149

### CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With BCM

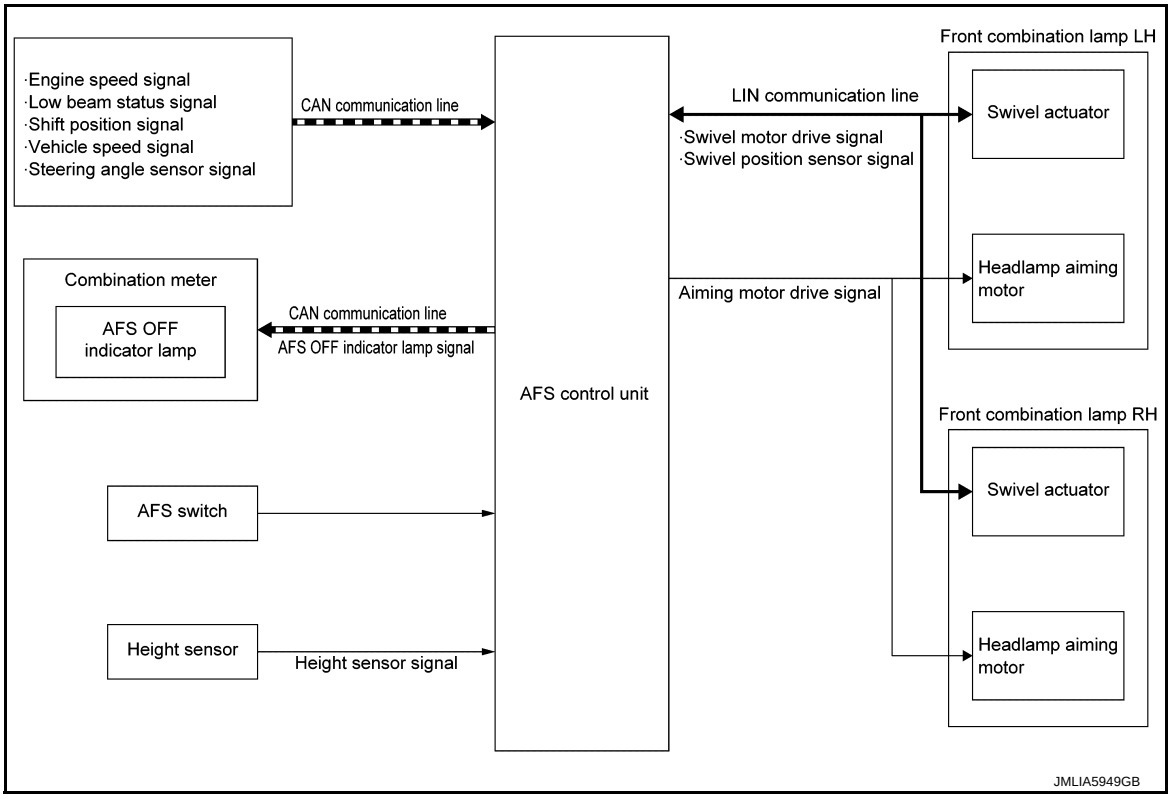
| Control part | Fail-safe operation |
|---|---|
| Daytime running light | Daytime running light relay OFF |

# ACTIVE ADAPTIVE FRONT-LIGHTING SYSTEM

# ACTIVE ADAPTIVE FRONT-LIGHTING SYSTEM : System Description

INFOID:0000000011460150

## SYSTEM DIAGRAM




## OUTLINE

- AFS (ACTIVE ADAPTIVE FRONT-LIGHTING SYSTEM) is controlled by AFS control unit.
- AFS has AFS control (swivel control) and the headlamp auto aiming control.
  - AFS control swivels the headlamp to the steering direction.
  - Headlamp auto aiming control moves the headlamp light axis up/down according to the vehicle height.

## AFS (ADAPTIVE FRONT-LIGHTING SYSTEM)

### AFS Control Description

- AFS control unit controls the headlamp when the steering wheel is turned rightward or leftward.
- AFS control unit detects the vehicle condition necessary for AFS control with the following signals.
  - AFS switch signal
  - Engine speed signal (received from ECM via CAN communication)
  - Low beam status signal (received from IPDM E/R via CAN communication)
  - Shift position signal (received from TCM via CAN communication)
  - Vehicle speed signal (received from combination meter via CAN communication)
  - Steering angle sensor signal (received from steering angle sensor via CAN communication)
- When the operation conditions are satisfied, AFS control unit controls the swivel angle depending on the steering angle and the vehicle speed.

### AFS operation condition

- AFS ON (AFS OFF indicator lamp OFF)
- Engine running
- Swivel actuator initialization completed
- Headlamp ON
- Selector lever position other than P or R
- Vehicle speed approximately 5 km/h (3.11 MPH) or more
  (Left swivel only: Right swivel activates regardless of the vehicle speed.)
  **NOTE:**
  Swivel does not operate when the vehicle speed is 200 km/h (124.3 MPH) or more.

### Swivel Actuator Initialization

- AFS control unit performs the swivel actuator initialization when detecting that the engine starts.

- Swivels the headlamp to the vehicle-center side until it hits the stopper.
- Returns the swivel angle from the stopper. Completes the initialization with regarding the returned position as the swivel angle 0° (straight-forward position).

Swivel Operation

- AFS control unit transmits the swivel motor drive signal via LIN communication to the swivel actuator when activation conditions are satisfied. And swivels the headlamp.
- The swivel starts after steering angle approximately 5° or more (depending on the vehicle speed) from straight-forward position.
- The swivel angle becomes the maximum angle toward the driving direction if the steering angle is approximately 45.2° or more (depending on the vehicle speed). The swivel angle is maintained by shutting off the swivel motor drive signal.
- The swivel starts, and returns to the swivel angle 0° (straight-forward position) when the steering is returned to the straight-forward position.
- AFS control unit returns the swivel angle to the straight-forward position, and stops the swivel regardless of the steering angle if the operation condition is not satisfied while the swivel angle is not 0°.

AFS OFF indicator Lamp

- AFS control unit transmits AFS OFF indicator lamp signal to the combination meter.
- Combination meter turns AFS OFF indicator lamp ON/OFF/blinking according to AFS OFF indicator lamp signal.
- AFS OFF indicator lamp turns ON when AFS switched to OFF by operating AFS switch.
- AFS OFF indicator blinks (approximately 1 second each) if AFS control unit detects a specific DTC.

**NOTE:**

- AFS OFF indicator lamp is turned ON for 1 second for the AFS OFF indicator lamp bulb check when the ignition switch is turned ON. AFS OFF indicator lamp is turned OFF within 1 second when the ignition switch ON.
- Combination meter blinks AFS OFF indicator lamp (approximately 1 second each) if AFS OFF indicator lamp signal is not received from AFS control unit.

## HEADLAMP AUTO AIMING

Headlamp Auto Aiming Control Description

- AFS control unit controls the headlamp light axis height appropriately according to the vehicle height.
- AFS control unit detects the vehicle condition necessary for headlamp auto aiming control with the following signals.
- Height sensor signal
- Engine speed signal (received from ECM via CAN communication)
- Low beam status signal (received from IPDM E/R via CAN communication)
- Vehicle speed signal (received from combination meter via CAN communication)
- When the operation conditions are satisfied, AFS control unit transmits the aiming motor drive signal for adjusting the headlamp axis height.

Headlamp auto aiming operation condition

- While the engine running
- Headlamp ON
- Vehicle speed (Control mode is switched according to the driving condition.)

Headlamp Auto Aiming Operation

- AFS control unit calculates the vehicle pitch angle from the height sensor signal. AFS control unit judges the angle for adjusting the axis gap from the preset position.
- AFS control unit controls the headlamp axis by changing the aiming motor drive signal output according to the vehicle-rearward height when detecting the following vehicle condition. Output is maintained if other condition than following is detected.
- Engine starts
- Headlamp is turned ON
- Vehicle posture becomes stable after changing the vehicle posture change is detected with the headlamp ON and the vehicle stopped
- Vehicle speed is maintained with the headlamp ON and the vehicle driven

**NOTE:**

Adjusted axis position may differ from the preset position although the headlamp auto aiming activates properly if the suspension is replaced or worn.

## ACTIVE ADAPTIVE FRONT-LIGHTING SYSTEM : Fail-safe

INFOID:0000000011460152

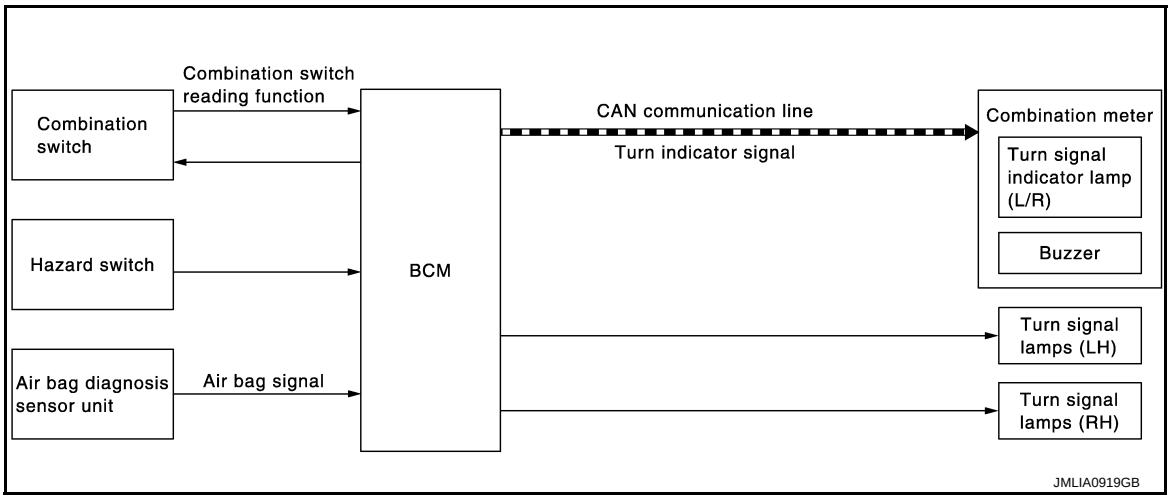
| DTC No. | CONSULT screen terms | Fail-safe | |
|---|---|---|---|
| | | Swivel operation | Aiming operation |
| B2008 | PARA NOT PROG | Right and left swivel motors stop at the position when DTC is detected | Right and left headlamp aiming motors stop at the position when DTC is detected |
| B2503 | SWIVEL ACTUATOR [RH] | • Right swivel motor stop at the position when DTC is detected<br>• Left swivel motor swivel angle returns to 0° and fixed | The signal, approximately 2 V decreased from the aiming motor drive signal when DTC detected, is output |
| | SWIVEL ACTUATOR [RH] COMM ERROR | • Right swivel motor stop at the position when DTC is detected or right swivel motor swivel angle returns to 0° and fixed<br>• Left swivel motor swivel angle returns to 0° and fixed | |
| B2504 | SWIVEL ACTUATOR [LH] | • Left swivel motor stop at the position when DTC is detected<br>• Right swivel motor swivel angle returns to 0° and fixed | The signal, approximately 2 V decreased from the aiming motor drive signal when DTC detected, is output |
| | SWIVEL ACTUATOR [LH] COMM ERROR | • Left swivel motor stop at the position when DTC is detected or left swivel motor swivel angle returns to 0° and fixed<br>• Right swivel motor swivel angle returns to 0° and fixed | |
| B2514 | HI SEN UNUSUAL [RR] | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |
| B2516 | SHIFT POS SIG[R,P] | Right and left swivel motor swivel angle returns to 0° and fixed | — |
| B2517 | VEHICEL SPEED SIG | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |
| B2519 | LEVELIZER CALIB | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors fix at the initial aiming position |
| B2521 | ECU CIRC | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |
| U0126 | ST ANG SEN SIG | Right and left swivel motor swivel angle returns to 0° and fixed | — |
| U0428 | ST ANG SEN CALIB | Right and left swivel motor swivel angle returns to 0° and fixed | — |
| U1000 | CAN COMM CIRCUIT | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected<br>**NOTE:**<br>Only when the vehicle speed signal or the low beam status signal cannot be received |
| U1010 | CONTROL UNIT(CAN) | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |

## TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Description

INFOID:0000000011460156

## SYSTEM DIAGRAM




## OUTLINE

Turn signal lamp and hazard warning lamp is controlled by combination switch reading function and the flasher control function of BCM.

## TURN SIGNAL LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM supplies voltage to the right (left) turn signal lamp circuit when the ignition switch is ON and the turn signal switch is in the right (left) position. BCM blinks the turn signal lamp.

## HAZARD WARNING LAMP OPERATION

BCM supplies voltage to both turn signal lamp circuits when the hazard switch is ON. BCM blinks the hazard warning lamp.

## TURN SIGNAL INDICATOR LAMP AND TURN SIGNAL SOUND OPERATION

- BCM transmits the turn indicator signal to the combination meter via CAN communication while the turn signal lamp and the hazard warning lamp are operating.
- Combination meter outputs the turn signal sound with the integrated buzzer while blinking the turn signal indicator lamp according to the turn indicator signal.

## 3-TIME FLASHER FUNCTION

- By a short touch of the turn signal lever, BCM blinks the turn signal lamps 3 times in the selected direction.
- Cancels the operation when short touch of the turn signal lever in the reverse direction during the 3-time flasher function operation.

## HIGH FLASHER OPERATION

- BCM detects the turn signal lamp circuit status from the current value.
- BCM increases the turn signal lamp blinking speed if the bulb or harness open is detected with the turn signal lamp operating.

**NOTE:**
The blinking speed is normal while operating the hazard warning lamp.

## AUTO HAZARD FUNCTION

- Air bag diagnosis sensor unit transmits air bag signal to BCM, when air bag diagnosis sensor unit detects strong impact to the vehicle body while ignition switch is ON.
- When air bag signal received from air bag diagnosis sensor unit is detected, BCM supplies voltage to each turn signal lamp system and hazard lamp blinks.

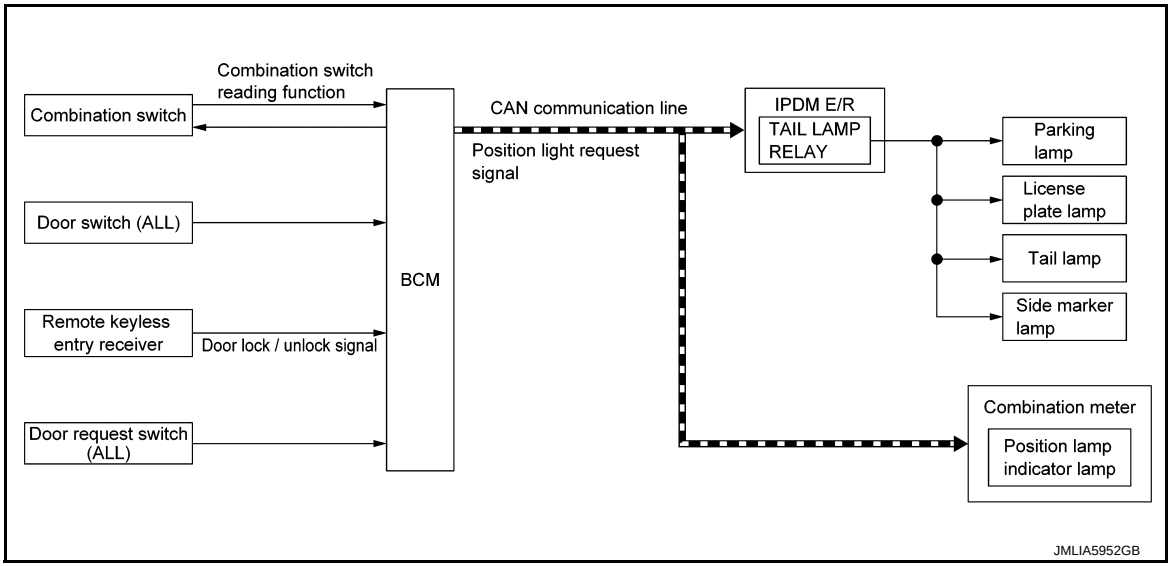
# PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM

# PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : System De-

scription

INFOID:0000000011460158

## SYSTEM DIAGRAM




## OUTLINE

Parking, license plate, side marker and tail lamps are controlled by combination switch reading function and parking, license plate, side marker and tail lamps control function of BCM, and relay control function of IPDM E/R.

## PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the position light request signal to IPDM E/R and the combination meter via CAN communication according to the parking, license plate, side marker and tail lamps ON condition.

Parking, license plate, side marker and tail lamps ON condition (When any of the following conditions are satisfied)

- Lighting switch 1ST
- Lighting switch 2ND
- Lighting switch AUTO (Only when the illumination judgment by auto light system is ON. For details, refer to EXL-15, "AUTO LIGHT SYSTEM : System Description".)

- IPDM E/R turns the integrated tail lamp relay ON and turns the parking, license plate, side marker and tail lamps ON according to the position light request signal.
- Combination meter turns the position lamp indicator lamp ON according to the position light request signal.

**NOTE:**

Parking lamp (Upper side / Lower side) and daytime running light (Upper side / Lower side) use a common light source. When the parking, license plate, side marker and tail lamps are turned ON while daytime running light is ON, the parking lamp (Lower side) / daytime running light (Lower side) is dimmed.

## SIGNATURE LIGHT FUNCTION

### Description

The signature light function is a function that turns ON the parking lamp, license plate lamp, side marker lamp and tail lamp for a set period of time when the doors are locked or unlocked from outside the vehicle.

### Operation Description

BCM transmits the position light request signal to IPDM E/R and the combination meter via CAN communication according to the signature light function ON condition.

Signature light function operating condition (Operation when doors are unlocked)

- When all of the following conditions are satisfied, the signature light function operates when door unlock operation is performed from outside the vehicle (Intelligent Key or door request switch).
- Ignition switch: OFF
- Door open/close status: All door close
- Door lock status: All door lock

- When any of the following conditions is satisfied while the signature light function is operating, the signature light function stops.

- Ignition switch: ON
- Since signature light function ON, approx. 30 seconds are passed.
• When door lock operation is performed from outside the vehicle (Intelligent Key or door request switch) while the signature light function is operating, the system changes to operation when doors are locked.

Signature light function operating condition (Operation when doors are locked)

• When all of the following conditions are satisfied, the signature light function operates when door lock operation is performed from outside the vehicle (Intelligent Key or door request switch).
- Ignition switch: OFF
- Door open/close status: All door close
- Door lock status: All door unlock
• When any of the following conditions is satisfied while the signature light function is operating, the signature light function stops.
- Ignition switch: ON
- Since signature light function ON, approx.10 seconds are passed.
- When door unlock operation is performed from outside the vehicle (Intelligent Key or door request switch) while the signature light function is operating, the system changes to operation when doors are unlocked.

**NOTE:**

ON/OFF of signature light function can be changed using CONSULT. Refer to DLK-36, "DOOR LOCK : CONSULT Function (BCM - DOOR LOCK)".

## PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMP SYSTEM : Fail-safe

INFOID:0000000011460160

### CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With BCM

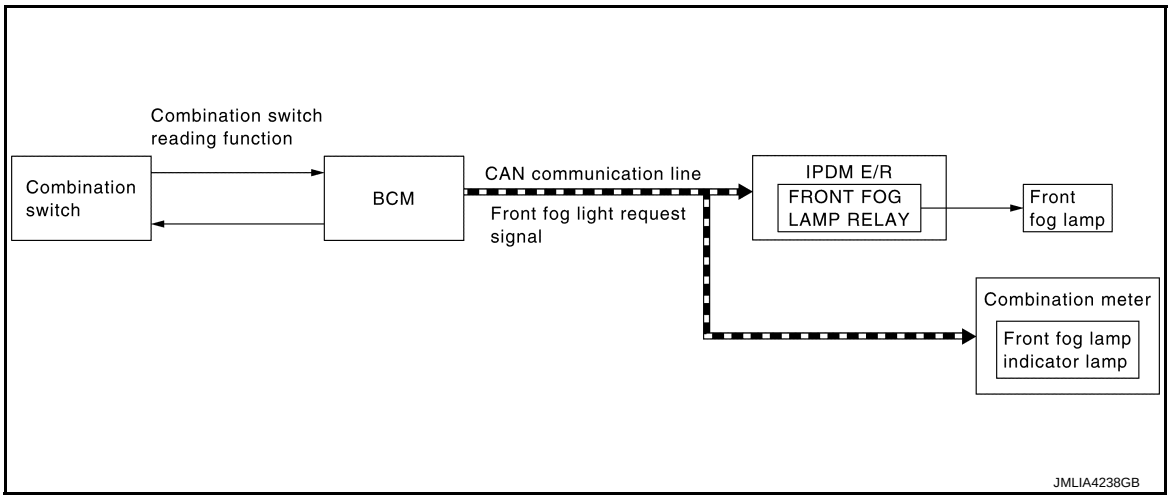
| Control part | Fail-safe operation |
|---|---|
| • Parking lamp<br>• License plate lamp<br>• Side marker lamp<br>• Tail lamp | • Turns ON the tail lamp relay when the ignition switch is turned ON<br>• Turns OFF the tail lamp relay when the ignition switch is turned OFF |

# FRONT FOG LAMP SYSTEM

## FRONT FOG LAMP SYSTEM : System Description

INFOID:0000000011460165

### SYSTEM DIAGRAM




### OUTLINE

Front fog lamp is controlled by combination switch reading function and front fog lamp control function of BCM, and relay control function of IPDM E/R.

### FRONT FOG LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the front fog light request signal to IPDM E/R and the combination meter via CAN communication according to the front fog lamp ON condition.

Front fog lamp ON condition
- Front fog lamp switch ON, and any of the following conditions are satisfied. [Except headlamp (HI) ON condition]
- Lighting switch 2ND
- Lighting switch AUTO (Only when the illumination judgment by auto light system is ON. For details, refer to EXL-15, "AUTO LIGHT SYSTEM : System Description".)
- IPDM E/R turns the integrated front fog lamp relay ON, and turns the front fog lamp ON according to the front fog light request signal.
- Combination meter turns the front fog lamp indicator lamp ON according to the front fog light request signal.

## FRONT FOG LAMP SYSTEM : Fail-safe

INFOID:0000000011460167

### CAN COMMUNICATION CONTROL

When CAN communication with BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With BCM

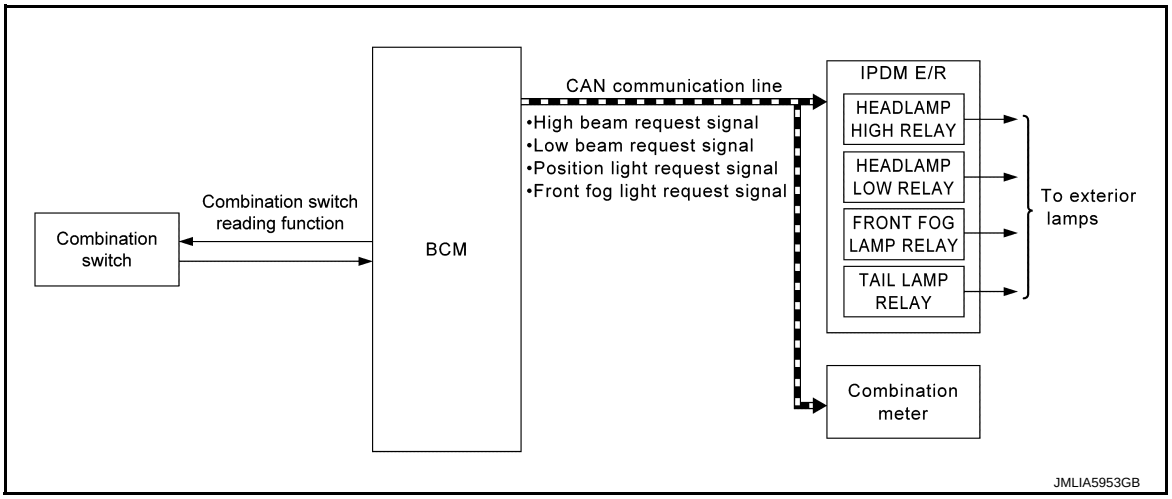
| Control part | Fail-safe operation |
|---|---|
| Front fog lamp | Front fog lamp relay OFF |

# EXTERIOR LAMP BATTERY SAVER SYSTEM

## EXTERIOR LAMP BATTERY SAVER SYSTEM : System Description

INFOID:0000000011460170

### SYSTEM DIAGRAM




### OUTLINE

- Exterior lamp battery saver system is controlled by combination switch reading function and exterior lamp battery saver function of BCM, and relay control function of IPDM E/R.
- BCM turns the exterior lamp* OFF, according to the vehicle status when ignition switch is turned OFF while exterior lamp is ON, for preventing battery discharge.

*: Headlamp (LO/HI), front fog lamp, parking lamp, license plate lamp, side marker lamp and tail lamp

### EXTERIOR LAMP BATTERY SAVER ACTIVATION

- BCM activates the timer and turns the exterior lamp OFF 45 seconds after the ignition switch is turned from ON→OFF with the exterior lamps ON.
- When in any of following conditions (after the exterior lamp battery saver is activated), exterior lamps can be turned ON.
- Ignition switch is turned from OFF→ON
- Lighting switch is changed
- Front fog lamp switch is changed

# DIAGNOSIS SYSTEM (BCM)
## COMMON ITEM
## COMMON ITEM : CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000011460362

### APPLICATION ITEM
CONSULT performs the following functions via CAN communication with BCM.

| Diagnosis mode | Function Description |
|---|---|
| Work Support | Changes the setting for each system function. |
| Self Diagnostic Result | Displays the diagnosis results judged by BCM. |
| CAN Diag Support Monitor | Monitors the reception status of CAN communication viewed from BCM. |
| Data Monitor | The BCM input/output signals are displayed. |
| Active Test | The signals used to activate each device are forcibly supplied from BCM. |
| Ecu Identification | The BCM part number is displayed. |
| Configuration | • Read and save the vehicle specification.<br>• Write the vehicle specification when replacing BCM. |

### SYSTEM APPLICATION
BCM can perform the following functions for each system.
**NOTE:**
It can perform the diagnosis modes except the following for all sub system selection items.

×: Applicable item

| System | Sub system selection item | Diagnosis mode | | |
|---|---|---|---|---|
| | | Work Support | Data Monitor | Active Test |
| Door lock | DOOR LOCK | × | × | × |
| Rear window defogger | REAR DEFOGGER | | × | × |
| Warning chime | BUZZER | | × | × |
| Interior room lamp timer | INT LAMP | × | × | × |
| Exterior lamp | HEAD LAMP | × | × | × |
| Wiper and washer | WIPER | × | × | × |
| Turn signal and hazard warning lamps | FLASHER | × | × | × |
| — | AIR CONDITONER* | | × | × |
| • Intelligent Key system<br>• Engine start system | INTELLIGENT KEY | × | × | × |
| Combination switch | COMB SW | | × | |
| Body control system | BCM | × | | |
| IVIS - NATS | IMMU | × | × | × |
| Interior room lamp battery saver | BATTERY SAVER | × | × | × |
| Trunk lid open | TRUNK | | × | |
| Vehicle security system | THEFT ALM | × | × | × |
| RAP system | RETAINED PWR | | × | |
| Signal buffer system | SIGNAL BUFFER | | × | × |
| — | AIR PRESSURE MONITOR* | × | × | × |

*: This item is not used.

### FREEZE FRAME DATA (FFD)
The BCM records the following vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

| CONSULT screen item | Indication/Unit | Description | |
|---|---|---|---|
| Vehicle Speed | km/h | Vehicle speed of the moment a particular DTC is detected | |
| Odo/Trip Meter | km | Total mileage (Odometer value) of the moment a particular DTC is detected | |
| Vehicle Condition | SLEEP>LOCK | Power position status of the moment a particular DTC is detected* | While turning BCM status from low power consumption mode to normal mode (Power supply position is “LOCK”*) |
| | SLEEP>OFF | | While turning BCM status from low power consumption mode to normal mode (Power supply position is “OFF”.) |
| | LOCK>ACC | | While turning power supply position from “LOCK” *to “ACC” |
| | ACC>ON | | While turning power supply position from “ACC” to “IGN” |
| | RUN>ACC | | While turning power supply position from “RUN” to “ACC” (Vehicle is stopping and selector lever is except P position.) |
| | CRANK>RUN | | While turning power supply position from “CRANKING” to “RUN” (From cranking up the engine to run it) |
| | RUN>URGENT | | While turning power supply position from “RUN“ to “ACC” (Emergency stop operation) |
| | ACC>OFF | | While turning power supply position from “ACC” to “OFF” |
| | OFF>LOCK | | While turning power supply position from “OFF” to “LOCK”* |
| | OFF>ACC | | While turning power supply position from “OFF” to “ACC” |
| | ON>CRANK | | While turning power supply position from “IGN” to “CRANKING” |
| | OFF>SLEEP | | While turning BCM status from normal mode (Power supply position is “OFF”.) to low power consumption mode |
| | LOCK>SLEEP | | While turning BCM status from normal mode (Power supply position is “LOCK”*.) to low power consumption mode |
| | LOCK | | Power supply position is “LOCK” (Ignition switch OFF with steering is locked.)* |
| | OFF | | Power supply position is “OFF” (Ignition switch OFF with steering is unlocked.) |
| | ACC | | Power supply position is “ACC” (Ignition switch ACC) |
| | ON | | Power supply position is “IGN” (Ignition switch ON with engine stopped) |
| | ENGINE RUN | | Power supply position is “RUN” (Ignition switch ON with engine running) |
| | CRANKING | | Power supply position is “CRANKING” (At engine cranking) |
| IGN Counter | 0 - 39 | The number of times that ignition switch is turned ON after DTC is detected<br>• The number is 0 when a malfunction is detected now.<br>• The number increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON.<br>• The number is fixed to 39 until the self-diagnosis results are erased if it is over 39. | |

**NOTE:**
*: Power supply position shifts to “LOCK” from “OFF”, when ignition switch is in the OFF position, selector lever is in the P position, and any of the following conditions are met.
- Closing door
- Opening door
- Door is locked using door request switch
- Door is locked using Intelligent Key

The power supply position shifts to “ACC” when the push-button ignition switch (push switch) is pushed at “LOCK”.

# HEADLAMP

## HEADLAMP : CONSULT Function (BCM - HEAD LAMP)

INFOID:0000000011460179

WORK SUPPORT

| Service item | Setting item | Setting | |
|---|---|---|---|
| CUSTOM A/LIGHT SETTING | MODE1*2 | Normal | |
| | MODE2 | More sensitive setting than normal setting (Turns ON earlier than normal operation) | |
| | MODE3 | More sensitive setting than MODE2 (Turns ON earlier than MODE2) | |
| | MODE4 | Less sensitive setting than normal setting (Turns ON later than normal operation) | |
| BATTERY SAVER SET | On*2 | With the exterior lamp battery saver function | |
| | Off | Without the exterior lamp battery saver function | |
| ILL DELAY SET | MODE1*2 | 45 sec. | Sets delay timer function timer operation time. (All doors closed) |
| | MODE2 | Without the function | |
| | MODE3 | 30 sec. | |
| | MODE4 | 60 sec. | |
| | MODE5 | 90 sec. | |
| | MODE6 | 120 sec. | |
| | MODE7 | 150 sec. | |
| | MODE8 | 180 sec. | |
| AUTO LIGHT LOGIC SET*1 | MODE1*2 | With twilight ON custom & with wiper INT, LO and HI | |
| | MODE2 | With twilight ON custom & with wiper LO and HI | |
| | MODE3 | With twilight ON custom & without | |
| | MODE4 | Without twilight ON custom & with wiper INT, LO and HI | |
| | MODE5 | Without twilight ON custom & with wiper LO and HI | |
| | MODE6 | Without twilight ON custom & without | |

*1: For models for Canada, this item cannot be used.

*2: Factory setting

## DATA MONITOR

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitor item [Unit] | Description |
|---|---|
| PUSH SW [On/Off] | Indicates [On/Off] condition of push-button ignition switch |
| ENGINE STATE [STOP/STALL/CRANK/RUN] | Indicates [STOP/STALL/CRANK/RUN] condition of engine states |
| VEH SPEED 1 [km/h] | Display the vehicle speed signal received from combination meter by numerical value [km/h] |

| Monitor item [Unit] | Description |
|---|---|
| TURN SIGNAL R [On/Off] | Each switch status that BCM judges from the combination switch reading function |
| TURN SIGNAL L [On/Off] | |
| TAIL LAMP SW [On/Off] | |
| HI BEAM SW [On/Off] | |
| HEAD LAMP SW 1 [On/Off] | |
| HEAD LAMP SW 2 [On/Off] | |
| PASSING SW [On/Off] | |
| AUTO LIGHT SW [On/Off] | |
| FR FOG SW [On/Off] | |
| RR FOG SW [On/Off] | **NOTE:** This item cannot be monitored |
| DOOR SW-DR [On/Off] | Indicated [On/Off] condition of front door switch (driver side) |
| DOOR SW-AS [On/Off] | Indicated [On/Off] condition of front door switch (passenger side) |
| DOOR SW-RR [On/Off] | Indicated [On/Off] condition of rear door switch RH |
| DOOR SW-RL [On/Off] | Indicated [On/Off] condition of rear door switch LH |
| DOOR SW-BK [On/Off] | **NOTE:** This item cannot be monitored |
| OPTI SEN (DTCT) [V] | The value of outside brightness voltage input from the optical sensor |
| OPTI SEN (FILT)* [V] | The value of outside brightness voltage filtered by BCM |
| OPTICAL SENSOR [On/Off/NG] | **NOTE:** This item cannot be monitored |

*: For models for Canada, this item cannot be monitored.

## ACTIVE TEST

| Test item | Operation | Description |
|---|---|---|
| TAIL LAMP | On | • Transmits the position light request signal to IPDM E/R via CAN communication to turn the parking, license plate, side marker and tail lamps ON<br>• Transmits the position light request signal to combination meter via CAN communication to turn the position lamp indicator lamp ON |
| | Off | Stops the position light request signal transmission |
| HEAD LAMP | HI | • Transmits the high beam request signal to IPDM E/R via CAN communication to turn the headlamp (HI) ON<br>• Transmits the high beam request signal to combination meter via CAN communication to turn the high beam indicator lamp ON |
| | Low | Transmits the low beam request signal to IPDM E/R via CAN communication to turn the headlamp (LO) ON |
| | Off | Stops the high beam request signal and low beam request signal transmission |

| Test item | Operation | Description |
|---|---|---|
| FR FOG LAMP | On | • Transmits the front fog light request signal to IPDM E/R via CAN communication to turn the front fog lamp ON<br>• Transmits the front fog light request signal to combination meter via CAN communication to turn the front fog lamp indicator lamp ON |
| | Off | Stops the front fog light request signal transmission |
| RR FOG LAMP | On | **NOTE:**<br>This item cannot be tested |
| | Off | |
| DAYTIME RUNNING LIGHT | On | Transmits the daytime running light request signal via CAN communication to turn the daytime running light ON |
| | Off | Stops the daytime running light request signal transmission |
| ILL DIM SIGNAL | On | • Transmits the dimmer signal to combination meter via CAN communication and dims combination meter<br>• Transmits the dimmer signal to AV control unit and dims display |
| | Off | Stops the dimmer signal transmission |

# FLASHER

## FLASHER : CONSULT Function (BCM - FLASHER)

INFOID:0000000011460180

### WORK SUPPORT

| Service item | Setting item | Setting | |
|---|---|---|---|
| HAZARD ANSWER BACK | Lock Only | With locking only | Sets the hazard warning lamp answer back function when the door is lock/unlock with the door request switch and Intelligent Key |
| | Unlock Only | With unlocking only | |
| | Lock/ Unlock* | With locking/unlocking | |
| | Off | Without the function | |

*: Factory setting

### DATA MONITOR

**NOTE:**
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitor item [Unit] | Description |
|---|---|
| REQ SW -DR [On/Off] | Indicates [On/Off] condition of door request switch (driver side) |
| REQ SW -AS [On/Off] | Indicates [On/Off] condition of door request switch (passenger side) |
| PUSH SW [On/Off] | Indicates [On/Off] condition of push-button ignition switch |
| TURN SIGNAL R [On/Off] | Each switch status that BCM detects from the combination switch reading function |
| TURN SIGNAL L [On/Off] | |
| HAZARD SW [On/Off] | The switch status input from the hazard switch |
| RKE-LOCK [On/Off] | Indicates [On/Off] condition of LOCK signal from Intelligent Key |

| Monitor item [Unit] | Description |
|---|---|
| RKE-UNLOCK [On/Off] | Indicates [On/Off] condition of UNLOCK signal from Intelligent Key |
| RKE-PANIC [On/Off] | Indicates [On/Off] condition of PANIC button of Intelligent Key |

## ACTIVE TEST

| Test item | Operation | Description |
|---|---|---|
| FLASHER | RH | • Outputs voltage to turn the right side turn signal lamps ON<br>• Transmits the turn indicator signal to combination meter via CAN communication to turn the turn signal indicator lamp (RH) ON |
| | LH | • Outputs voltage to turn the left side turn signal lamps ON<br>• Transmits the turn indicator signal to combination meter via CAN communication to turn the turn signal indicator lamp (LH) ON |
| | Off | • Stops the voltage to turn the turn signal lamps OFF<br>• Stops the turn indicator signal transmission |

# DIAGNOSIS SYSTEM (IPDM E/R)

## Diagnosis Description

INFOID:0000000011460363

### AUTO ACTIVE TEST

Description

In auto active test, the IPDM E/R sends a drive signal to the following systems to check their operation.

- Oil pressure warning lamp (only for models with VQ37VHR engine)
- Front wiper (LO, HI)
- Parking lamp
- License plate lamp
- Tail lamp
- Side marker lamp
- Front fog lamp
- Headlamp (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan (cooling fan control module)

Operation Procedure

**CAUTION:**

**Wiper arm interferes with hood when wiper is operated while wiper arm is in the raised position. Always perform auto active test without setting wiper arm in the raised position. Always pour water on front windshield glass in advance to auto active test so that damage on front windshield glass surface is prevented.**

**NOTE:**

Never perform auto active test in the following condition.

- Engine is running
- CONSULT is connected

1. Turn the ignition switch OFF.
2. Turn the ignition switch ON, and within 20 seconds, press the front door switch (driver side) 10 times. Then turn the ignition switch OFF.
   **NOTE:**
   - Close passenger door.
   - Within 5 seconds after ignition switch is turned to the ON position and when driver door switch is pressed 6 times or more within 4 seconds, self-diagnosis function for BOSE amp. activates and speaker sounds. After waiting for 5 seconds or more after ignition switch is turned to the ON position and when driver door switch is operated, self-diagnosis function for BOSE amp. does not activate.
3. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
   **NOTE:**
   Engine starts when ignition switch is turned ON while brake pedal is depressed.
4. The oil pressure warning lamp starts blinking when the auto active test starts.
5. After a series of the following operations is repeated 3 times, auto active test is completed.

**NOTE:**

- When auto active test has to be cancelled halfway through test, turn the ignition switch OFF.
- When auto active test is not activated, door switch may be the cause. Check door switch. Refer to DLK-87, "Component Function Check".

Inspection in Auto Active Test

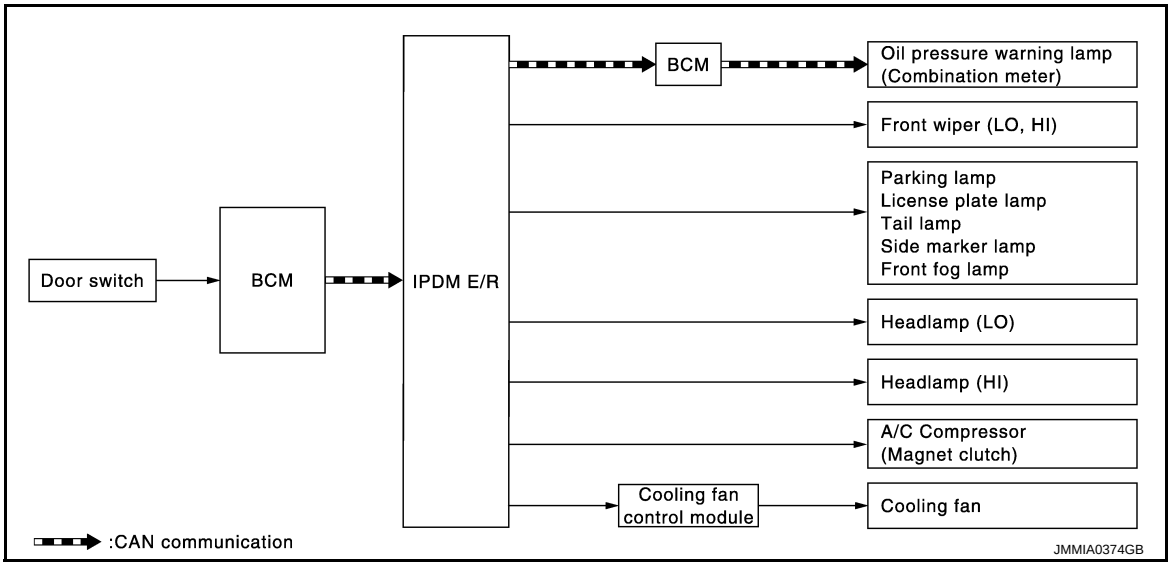
When auto active test is actuated, the following 6 steps are repeated 3 times.

| Operation sequence | Inspection location | Operation |
|---|---|---|
| 1 | Oil pressure warning lamp (only for models with VQ37VHR engine) | Blinks continuously during operation of auto active test |
| 2 | Front wiper motor | LO for 5 seconds → HI for 5 seconds |

| Operation sequence | Inspection location | Operation |
|---|---|---|
| 3 | • Parking lamp<br>• License plate lamp<br>• Tail lamp<br>• Side marker lamp<br>• Front fog lamp | 10 seconds |
| 4 | Headlamp | • LO 10 seconds<br>• HI ON ⇔ OFF 5 times |
| 5 | A/C compressor (magnet clutch) | ON ⇔ OFF 5 times |
| 6 | Cooling fan | MID for 5 seconds → HI for 5 seconds |

*: Outputs duty ratio of 50% for 5 seconds → duty ratio of 100% for 5 seconds on the cooling fan control module.

Concept of auto active test




- IPDM E/R starts the auto active test with the door switch signals transmitted by BCM via CAN communication. Therefore, the CAN communication line between IPDM E/R and BCM is considered normal if the auto active test starts successfully.
- The auto active test facilitates troubleshooting if any systems controlled by IPDM E/R cannot be operated.

Diagnosis chart in auto active test

| Symptom | Inspection contents | | Possible cause |
|---|---|---|---|
| Any of the following components do not operate<br>• Parking lamp<br>• License plate lamp<br>• Tail lamp<br>• Side marker lamp<br>• Front fog lamp<br>• Headlamp (HI, LO)<br>• Front wiper motor | Perform auto active test.<br>Does the applicable system operate? | YES | BCM signal input circuit |
| | | NO | • Lamp or motor<br>• Lamp or motor ground circuit<br>• Harness or connector between IPDM E/R and applicable system<br>• IPDM E/R |
| A/C compressor does not operate | Perform auto active test.<br>Does the magnet clutch operate? | YES | • Combination meter signal input circuit<br>• CAN communication signal between Combination meter and ECM<br>• CAN communication signal between ECM and IPDM E/R |
| | | NO | • Magnet clutch<br>• Harness or connector between IPDM E/R and magnet clutch<br>• IPDM E/R |

| Symptom | Inspection contents | | Possible cause |
|---|---|---|---|
| Oil pressure warning lamp does not operate (only for models with VQ37VHR engine) | Perform auto active test. Does the oil pressure warning lamp blink? | YES | • Harness or connector between IPDM E/R and oil pressure switch<br>• Oil pressure switch<br>• IPDM E/R |
| | | NO | • CAN communication signal between IPDM E/R and BCM<br>• CAN communication signal between BCM and Combination meter<br>• Combination meter |
| Cooling fan does not operate | Perform auto active test. Does the cooling fan operate? | YES | • ECM signal input circuit<br>• CAN communication signal between ECM and IPDM E/R |
| | | NO | • Cooling fan<br>• Harness or connector between cooling fan and cooling fan control module<br>• Cooling fan control module<br>• Harness or connector between IPDM E/R and cooling fan control module<br>• Cooling fan relay<br>• Harness or connector between IPDM E/R and cooling fan relay<br>• IPDM E/R |

## CONSULT Function (IPDM E/R)

INFOID:0000000011460364

### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with IPDM E/R.

| Diagnosis mode | Description |
|---|---|
| Ecu Identification | Allows confirmation of IPDM E/R part number. |
| Self Diagnostic Result | Displays the diagnosis results judged by IPDM E/R. |
| Data Monitor | Displays the real-time input/output data from IPDM E/R input/output data. |
| Active Test | IPDM E/R can provide a drive signal to electronic components to check their operations. |
| CAN Diag Support Monitor | The results of transmit/receive diagnosis of CAN communication can be read. |

### SELF DIAGNOSTIC RESULT

Refer to PCS-24, "DTC Index".

### DATA MONITOR

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitor Item [Unit] | MAIN SIGNALS | Description |
|---|---|---|
| RAD FAN REQ [%] | × | Displays the value of the cooling fan speed signal received from ECM via CAN communication. |
| AC COMP REQ [Off/On] | × | Displays the status of the A/C compressor request signal received from ECM via CAN communication. |
| TAIL&CLR REQ [Off/On] | × | Displays the status of the position light request signal received from BCM via CAN communication. |
| HL LO REQ [Off/On] | × | Displays the status of the low beam request signal received from BCM via CAN communication. |
| HL HI REQ [Off/On] | × | Displays the status of the high beam request signal received from BCM via CAN communication. |

| Monitor Item [Unit] | MAIN SIGNALS | Description |
|---|---|---|
| FR FOG REQ [Off/On] | × | Displays the status of the front fog light request signal received from BCM via CAN communication. |
| FR WIP REQ [Stop/1LOW/Low/Hi] | × | Displays the status of the front wiper request signal received from BCM via CAN communication. |
| WIP AUTO STOP [STOP P/ACT P] | × | Displays the status of the front wiper stop position signal judged by IPDM E/R. |
| WIP PROT [Off/BLOCK] | × | Displays the status of the front wiper fail-safe operation judged by IPDM E/R. |
| IGN RLY1 -REQ [Off/On] | | Displays the status of the ignition switch ON signal received from BCM via CAN communication. |
| IGN RLY [Off/On] | × | Displays the status of the ignition relay judged by IPDM E/R. |
| PUSH SW [Off/On] | | Displays the status of the push-button ignition switch judged by IPDM E/R. |
| INTER/NP SW [Off/On] | | Displays the status of the shift position judged by IPDM E/R. |
| ST RLY CONT [Off/On] | | Displays the status of the starter relay status signal received from BCM via CAN communication. |
| IHBT RLY -REQ [Off/On] | | Displays the status of the starter control relay signal received from BCM via CAN communication. |
| ST/INHI RLY [Off/ ST /INHI/UNKWN] | | Displays the status of the starter relay and starter control relay judged by IPDM E/R. |
| DETENT SW [Off/On] | | Displays the status of the A/T shift selector (detention switch) judged by IPDM E/R. |
| S/L RLY -REQ [Off/On] | | **NOTE:** This item is indicated, but not monitored. |
| S/L STATE [LOCK/UNLOCK/UNKWN] | | **NOTE:** This item is indicated, but not monitored. |
| DTRL REQ [Off/On] | | Displays the status of the daytime running light request signal received from BCM via CAN communication. **NOTE:** This item is monitored only on the vehicle with daytime running light system. |
| OIL P SW [Open/Close] | | Displays the status of the oil pressure switch judged by IPDM E/R. |
| HOOD SW [Off/On] | | Displays the status of the hood switch judged by IPDM E/R. |
| HL WASHER REQ [Off/On] | | **NOTE:** This item is indicated, but not monitored. |
| THFT HRN REQ [Off/On] | | Displays the status of the theft warning horn request signal received from BCM via CAN communication. |
| HORN CHIRP [Off/On] | | Displays the status of the horn reminder signal received from BCM via CAN communication. |
| CRNRNG LMP REQ [Off/On] | | **NOTE:** This item is indicated, but not monitored. |

## ACTIVE TEST

Test item

| Test item | Operation | Description |
|---|---|---|
| CORNERING LAMP | Off | **NOTE:** This item is indicated, but cannot be tested. |
| | LH | |
| | RH | |

| Test item | Operation | Description |
|---|---|---|
| HORN | On | Operates horn relay for 20 ms. |
| FRONT WIPER | Off | OFF |
| | Lo | Operates the front wiper relay. |
| | Hi | Operates the front wiper relay and front wiper high relay. |
| MOTOR FAN | 1 | OFF |
| | 2 | Transmits 50% pulse duty signal (PWM signal) to the cooling fan control module. |
| | 3 | Transmits 75% pulse duty signal (PWM signal) to the cooling fan control module. |
| | 4 | Transmits 100% pulse duty signal (PWM signal) to the cooling fan control module. |
| HEAD LAMP WASHER | On | **NOTE:**<br>This item is indicated, but cannot be tested. |
| EXTERNAL LAMPS | Off | OFF |
| | TAIL | Operates the tail lamp relay and the daytime running light relay. |
| | Lo | Operates the headlamp low relay. |
| | Hi | Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 second intervals. |
| | Fog | Operates the front fog lamp relay. |

# DIAGNOSIS SYSTEM (AFS CONTROL UNIT)

## CONSULT Function (ADAPTIVE LIGHT)

INFOID:0000000011460187

### APPLICATION ITEMS

| Diagnosis mode | Description |
|---|---|
| ECU Identification | Allows confirmation of AFS control unit part number |
| Self Diagnostic Result | Displays the diagnosis results judged by AFS control unit |
| Work Support | Performs settings on sensors. |
| Data Monitor | Displays input/output data for AFS control unit in real time |
| Active Test | Transmits a drive signal to the load to check their operation |
| Configuration | Writes the vehicle specification when replacing AFS control unit |

### ECU IDENTIFICATION

Part number of AFS control unit can be checked.

### SELF DIAGNOSTIC RESULT

Self Diagnostic Item

Self diagnostic result that is judged by AFS control unit can be checked. Refer to EXL-42, "DTC Index".

- When “CRNT” is displayed on self diagnostic result, the system is presently malfunctioning.
- When “PAST” is displayed on self diagnostic result, system malfunction in the past is detected, but the system is presently normal.

FFD (Freeze Frame Data)

The AFS control unit records the following vehicle condition at the time a particular DTC is detected, and displays on CONSULT.

| Monitor item [Unit] | Description |
|---|---|
| ODO/TRIP METER [km] | Total mileage (Odometer value) of the moment a particular DTC is detected |

### WORK SUPPORT

| Work item | Description |
|---|---|
| ST ANG SEN ADJUSTMENT* | — |
| LEVELIZER ADJUSTMENT | Adjusts the height sensor signal output value (AFS control unit recognized) in the unloaded vehicle condition |

*: This function is not necessary in the usual service procedure.

### DATA MONITOR

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitor item [Value/Unit] | Description |
|---|---|
| STR ANGLE SIG [°] | The steering angle value judged by the steering angle sensor signal received from the steering angle sensor via CAN communication |
| VHCL SPD [km/h] | The vehicle speed signal value from the combination meter via CAN communication |
| SLCT LVR POSI [P/R/N/D/M] | The selector lever status judged by the shift position signal received from TCM via CAN communication |
| HEAD LAMP [On/Off] | The headlamp ON/OFF status judged by the low beam status signal received from IPDM E/R via CAN communication |

| Monitor item [Value/Unit] | Description |
|---|---|
| AFS SW [On/Off] | The AFS ON/OFF status by AFS switch operation |
| REVERSE SW [On/Off] | **NOTE:** This item is displayed, but cannot be monitored |
| HI SEN OTP RR [V] | The height sensor signal voltage value input from the height sensor |
| HI SEN OTP FR [V] | **NOTE:** This item is displayed, but cannot be monitored |
| LEV ACTR VLTG [%] | The ratio value to the battery voltage generated by the aiming motor signal control value judged by AFS control unit |
| SWVL SEN LH [°] | The headlamp swivel angle value judged by AFS control unit according to the swivel position sensor signal received from the swivel actuator via LIN communication |
| SWVL SEN RH [°] | |
| SWVL ANGLE LH [°] | The swivel angle command value to the swivel motor judged by AFS control unit |
| SWVL ANGLE RH [°] | |
| HI SEN INI RR [V] | Height sensor signal voltage value at height sensor initialization |
| HI SEN INI FR [V] | **NOTE:** This item is displayed, but cannot be monitored |
| PINION ANGLE [°] | **NOTE:** This item is displayed, but cannot be monitored |

## ACTIVE TEST

| Test item | Operation | Description |
|---|---|---|
| LOW BEAM TEST RIGHT | Stop | Swivels the right headlamp to the swivel angle 0° |
| | Peak | Swivels the right headlamp to the swivel angle approximately 15° |
| | Origin | Swivels the right headlamp to the swivel angle 0° |
| LOW BEAM TEST LEFT | Stop | Swivels the left headlamp to the swivel angle 0° |
| | Peak | Swivels the left headlamp to the swivel angle approximately 15° |
| | Origin | Swivels the left headlamp to the swivel angle 0° |
| LEVELIZER TEST | Stop | Moves the headlamp axis to the initial position |
| | Peak | Moves the headlamp axis to the lowest position |
| | Origin | Moves the headlamp axis to the initial position |

## CONFIGURATION

The vehicle specification can be written when AFS control unit is replaced. Refer to EXL-76, "Description".

# ECU DIAGNOSIS INFORMATION

## BCM, IPDM E/R

### List of ECU Reference

INFOID:0000000011460189

| ECU | Reference |
|---|---|
| BCM | BCS-33, "Reference Value" |
| | BCS-53, "Fail-safe" |
| | BCS-54, "DTC Inspection Priority Chart" |
| | BCS-55, "DTC Index" |
| IPDM E/R | PCS-16, "Reference Value" |
| | PCS-23, "Fail-safe" |
| | PCS-24, "DTC Index" |

# AFS CONTROL UNIT

## Reference Value

INFOID:0000000011460194

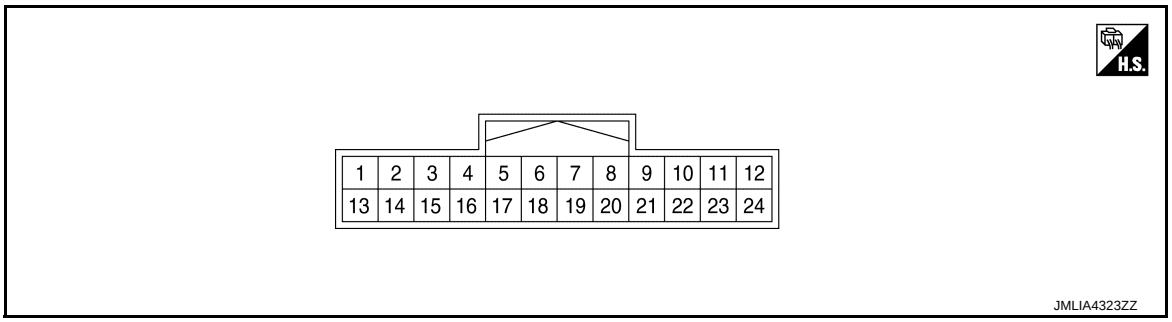
### VALUES ON THE DIAGNOSIS TOOL

**NOTE:**
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

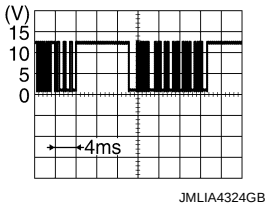
CONSULT MONITOR ITEM

| Monitor Item | Condition | | Value/Status |
|---|---|---|---|
| STR ANGLE SIG | Steering | Straight-forward | Approx. 0° |
| | | Steering | (–756°) – (756°) |
| VHCL SPD | Driving at 40 km/h (25 MPH) | | 40 km/h |
| SLCT LVR POSI | Selector lever operation | P/R/N/D | P/R/N/D |
| | | Manual shift gate side | M |
| HEAD LAMP | Headlamp | ON | On |
| | | OFF | Off |
| AFS SW | AFS switch | ON | On |
| | | OFF | Off |
| REVERSE SW | **NOTE:**<br>This item is displayed, but cannot be monitored | | |
| HI SEN OTP RR | Vehicle rear height | Unloaded vehicle condition | Approx. 2.94 V |
| | | Low | Voltage decreases from the unladen status |
| HI SEN OTP FR | **NOTE:**<br>This item is displayed, but cannot be monitored | | |
| LEV ACTR VLTG | Headlamp leveling | Unloaded vehicle condition | Approx. 20.0% |
| | | Low | Value increases from the unladen status |
| SWVL SEN LH | Left headlamp swivel activation | Standard position | Approx. 0° |
| | | Activation | Positive degree (+°) |
| SWVL SEN RH | Right headlamp swivel activation | Standard position | Approx. 0° |
| | | Activation | Positive degree (+°) |
| SWVL ANGLE LH | Left headlamp swivel activation | Standard position | Approx. 0° |
| | | Activation | Positive degree (+°) |
| SWVL ANGLE RH | Right headlamp swivel activation | Standard position | Approx. 0° |
| | | Activation | Positive degree (+°) |
| HI SEN INI RR | Ignition switch ON | | Approx. 2.94 V |
| HI SEN INI FR | **NOTE:**<br>This item is displayed, but cannot be monitored | | |
| PINION ANGLE | **NOTE:**<br>This item is displayed, but cannot be monitored | | |

TERMINAL LAYOUT




PHYSICAL VALUES

| Terminal No. (Wire color) | | Description | | Condition | | Value (Approx.) |
|---|---|---|---|---|---|---|
| + | - | Signal name | Input/ output | | | |
| 1 (L) | Ground | CAN-H | Input/ output | — | | — |
| 3 (GR) | Ground | AFS switch signal | Input | Ignition switch ON | AFS switch ON | 9 – 16 V |
| | | | | | AFS switch OFF | 0 V |
| 6 (Y) | Ground | Height sensor signal | Input | Vehicle rear height | Unloaded vehicle condition | 2.94 V |
| | | | | | Low | Voltage decreases from the unladen status |
| 8 (Y) | Ground | Swivel actuator LIN signal | Input/ output | Ignition switch ON | |   |
| 11 (B) | Ground | Ground | — | Ignition switch ON | | 0 V |
| 12 (G) | Ground | Ignition power supply | Input | Ignition switch ON | | 9 – 16 V |
| 13 (P) | Ground | CAN-L | Input/ output | — | | — |
| 19 (BR) | Ground | Swivel actuator ground | Input | Ignition switch ON | | 0 V |
| 21 (V) | Ground | Height sensor power supply | Output | Ignition switch ON | | 4.45 – 6.25 V |
| 22 (SB) | Ground | Aiming motor drive signal | Output | Headlamp leveling | Unloaded vehicle condition | 2.5 V |
| | | | | | Low | Voltage increases from the unladen status |
| 23 (LG) | Ground | Height sensor ground | Input | Ignition switch ON | | 0 V |
| 24 (B) | Ground | Aiming motor ground | Input | Ignition switch ON | | 0 V |

## Fail-safe

INFOID:0000000011460195

| DTC No. | CONSULT screen terms | Fail-safe | |
|---|---|---|---|
| | | Swivel operation | Aiming operation |
| B2008 | PARA NOT PROG | Right and left swivel motors stop at the position when DTC is detected | Right and left headlamp aiming motors stop at the position when DTC is detected |
| B2503 | SWIVEL ACTUATOR [RH] | • Right swivel motor stop at the position when DTC is detected<br>• Left swivel motor swivel angle returns to 0° and fixed | The signal, approximately 2 V decreased from the aiming motor drive signal when DTC detected, is output |
| | SWIVEL ACTUATOR [RH] COMM ERROR | • Right swivel motor stop at the position when DTC is detected or right swivel motor swivel angle returns to 0° and fixed<br>• Left swivel motor swivel angle returns to 0° and fixed | |
| B2504 | SWIVEL ACTUATOR [LH] | • Left swivel motor stop at the position when DTC is detected<br>• Right swivel motor swivel angle returns to 0° and fixed | The signal, approximately 2 V decreased from the aiming motor drive signal when DTC detected, is output |
| | SWIVEL ACTUATOR [LH] COMM ERROR | • Left swivel motor stop at the position when DTC is detected or left swivel motor swivel angle returns to 0° and fixed<br>• Right swivel motor swivel angle returns to 0° and fixed | |
| B2514 | HI SEN UNUSUAL [RR] | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |
| B2516 | SHIFT POS SIG[R,P] | Right and left swivel motor swivel angle returns to 0° and fixed | — |
| B2517 | VEHICEL SPEED SIG | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |
| B2519 | LEVELIZER CALIB | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors fix at the initial aiming position |
| B2521 | ECU CIRC | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |
| U0126 | ST ANG SEN SIG | Right and left swivel motor swivel angle returns to 0° and fixed | — |
| U0428 | ST ANG SEN CALIB | Right and left swivel motor swivel angle returns to 0° and fixed | — |
| U1000 | CAN COMM CIRCUIT | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected<br>**NOTE:**<br>Only when the vehicle speed signal or the low beam status signal cannot be received |
| U1010 | CONTROL UNIT(CAN) | Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |

## DTC Inspection Priority Chart

INFOID:0000000011460196

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

| Priority | DTC No. | CONSULT screen terms |
|---|---|---|
| 1 | U1000 | CAN COMM CIRCUIT |
| | U1010 | CONTROL UNIT(CAN) |
| 2 | B2008 | PARA NOT PROG |
| | B2519 | LEVELIZER CALIB |
| | B2521 | ECU CIRC |
| | U0428 | ST ANG SEN CALIB |
| 3 | B2503 | SWIVEL ACTUATOR [RH] |
| | | SWIVEL ACTUATOR [RH] COMM ERROR |
| | B2504 | SWIVEL ACTUATOR [LH] |
| | | SWIVEL ACTUATOR [LH] COMM ERROR |
| | B2514 | HI SEN UNUSUAL [RR] |
| | B2516 | SHIFT POS SIG[R,P] |
| | B2517 | VEHICEL SPEED SIG |
| | U0126 | ST ANG SEN SIG |

## DTC Index

INFOID:0000000011460197

×: Applicable

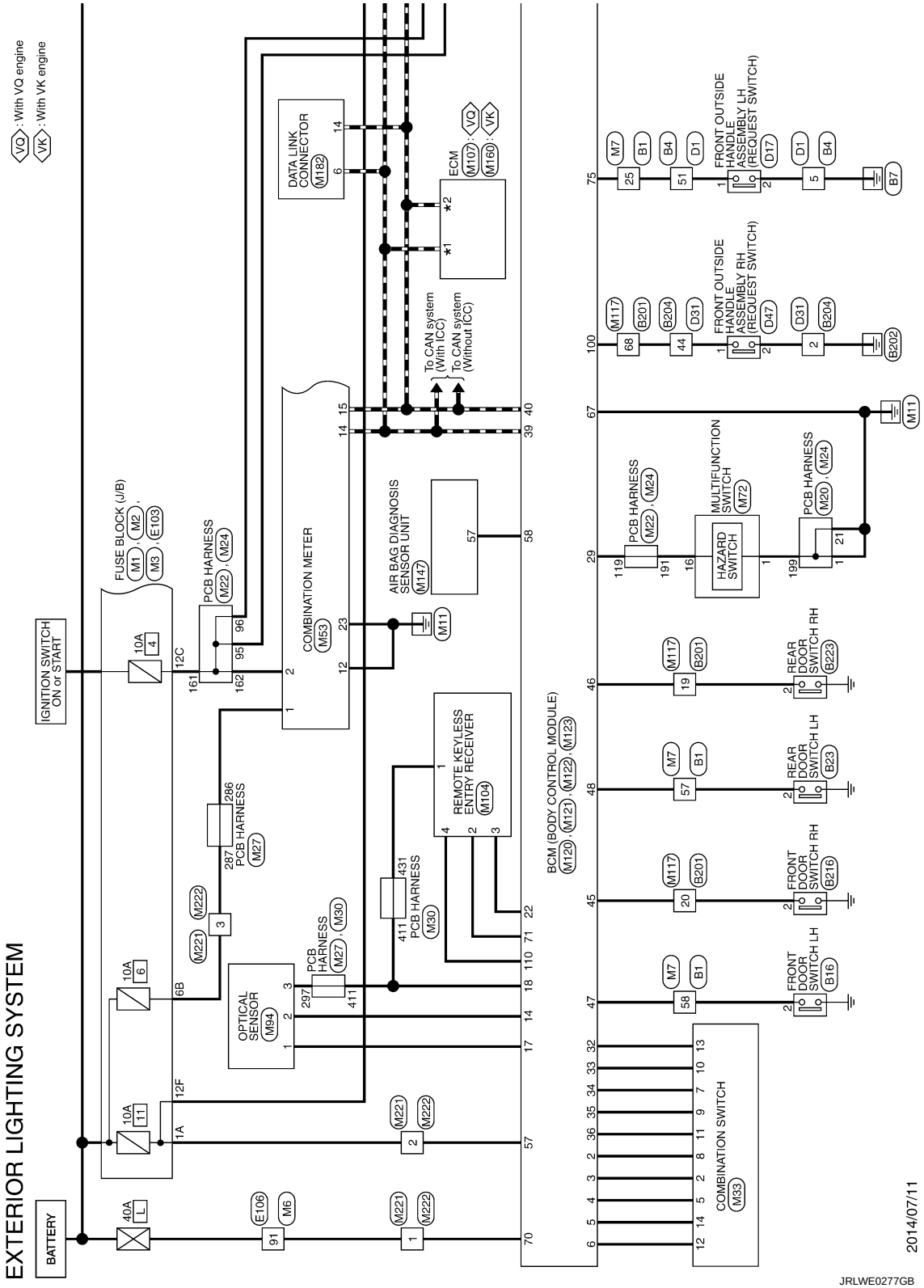
| DTC No. | CONSULT screen terms | Fail-safe | AFS OFF indicator lamp | Reference |
|---|---|---|---|---|
| B2008 | PARA NOT PROG | × | × | EXL-79, "DTC Description" |
| B2503 | SWIVEL ACTUATOR [RH] | × | × | EXL-80, "DTC Description" |
| | SWIVEL ACTUATOR [RH] COMM ERROR | × | × | |
| B2504 | SWIVEL ACTUATOR [LH] | × | × | EXL-82, "DTC Description" |
| | SWIVEL ACTUATOR [LH] COMM ERROR | × | × | |
| B2514 | HI SEN UNUSUAL [RR] | × | — | EXL-84, "DTC Description" |
| B2516 | SHIFT POS SIG[R,P] | × | — | EXL-87, "DTC Description" |
| B2517 | VEHICEL SPEED SIG | × | — | EXL-88, "DTC Description" |
| B2519 | LEVELIZER CALIB | × | — | EXL-89, "DTC Description" |
| B2521 | ECU CIRC | × | — | EXL-90, "DTC Description" |
| U0126 | ST ANG SEN SIG | × | — | EXL-91, "DTC Description" |
| U0428 | ST AND SEN CALIB | × | — | EXL-92, "DTC Description" |
| U1000 | CAN COMM CIRCUIT | × | — | EXL-93, "DTC Description" |
| U1010 | CONTROL UNIT(CAN) | × | — | EXL-94, "DTC Description" |

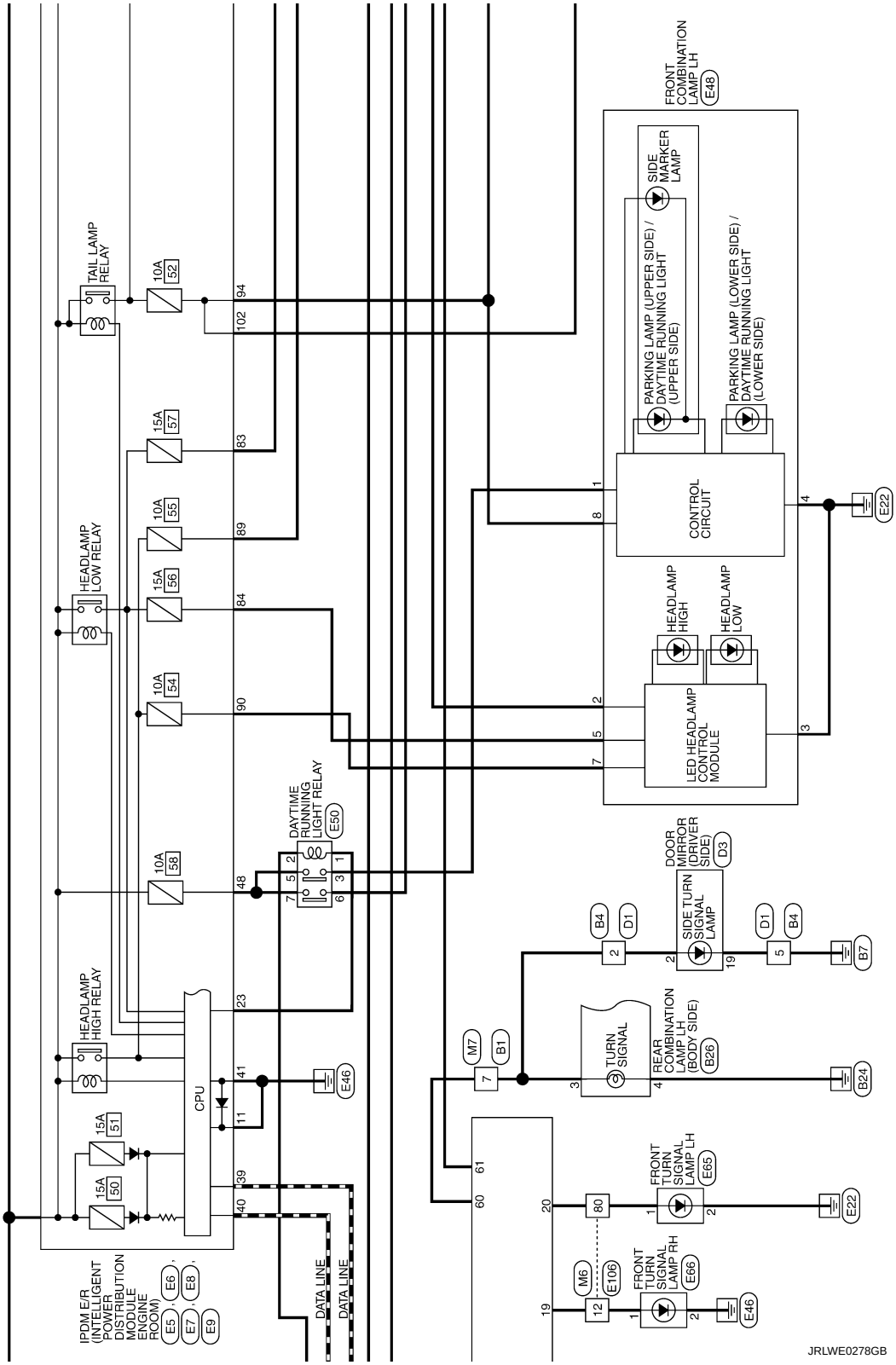
# WIRING DIAGRAM

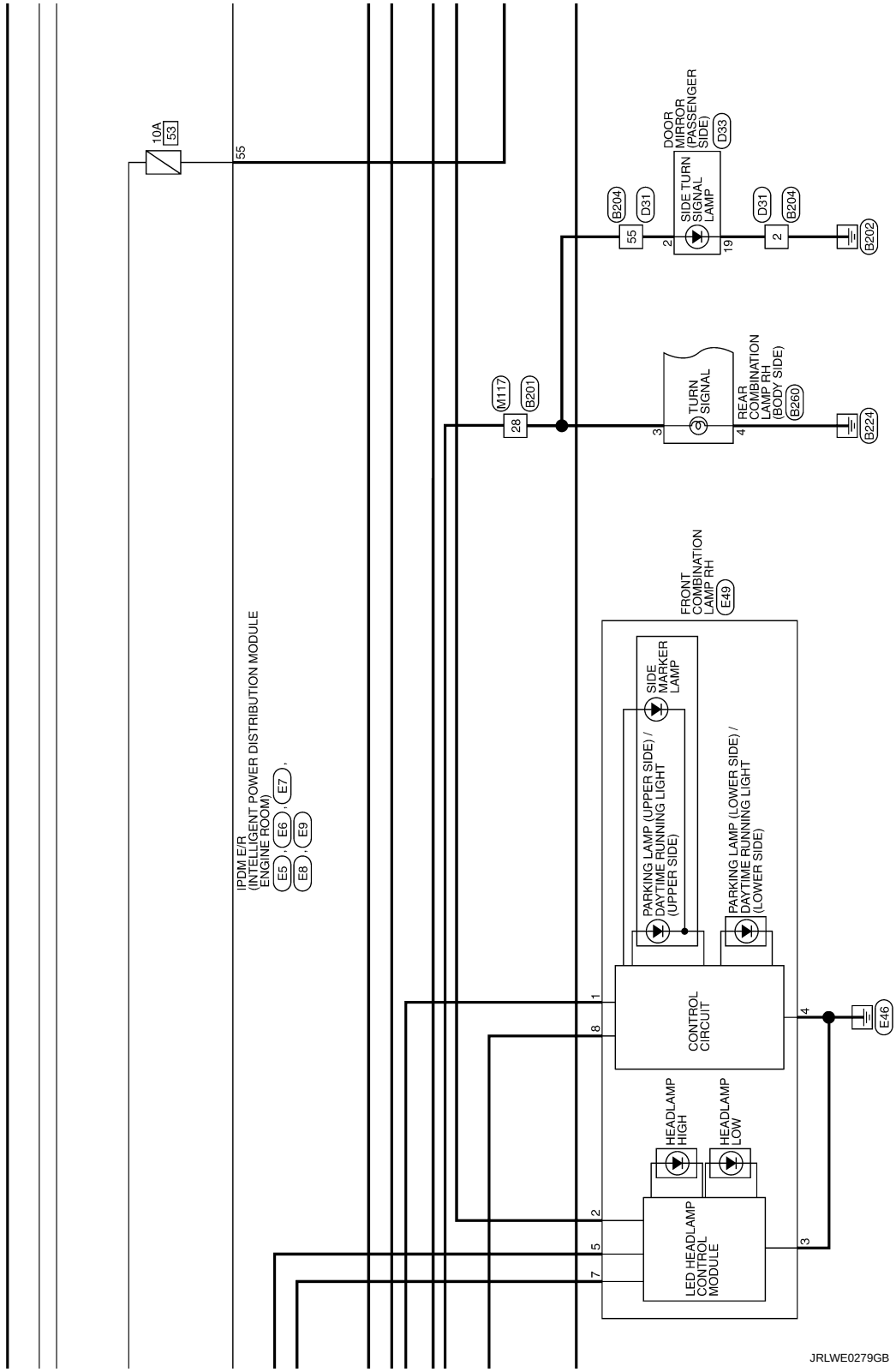
## EXTERIOR LIGHTING SYSTEM

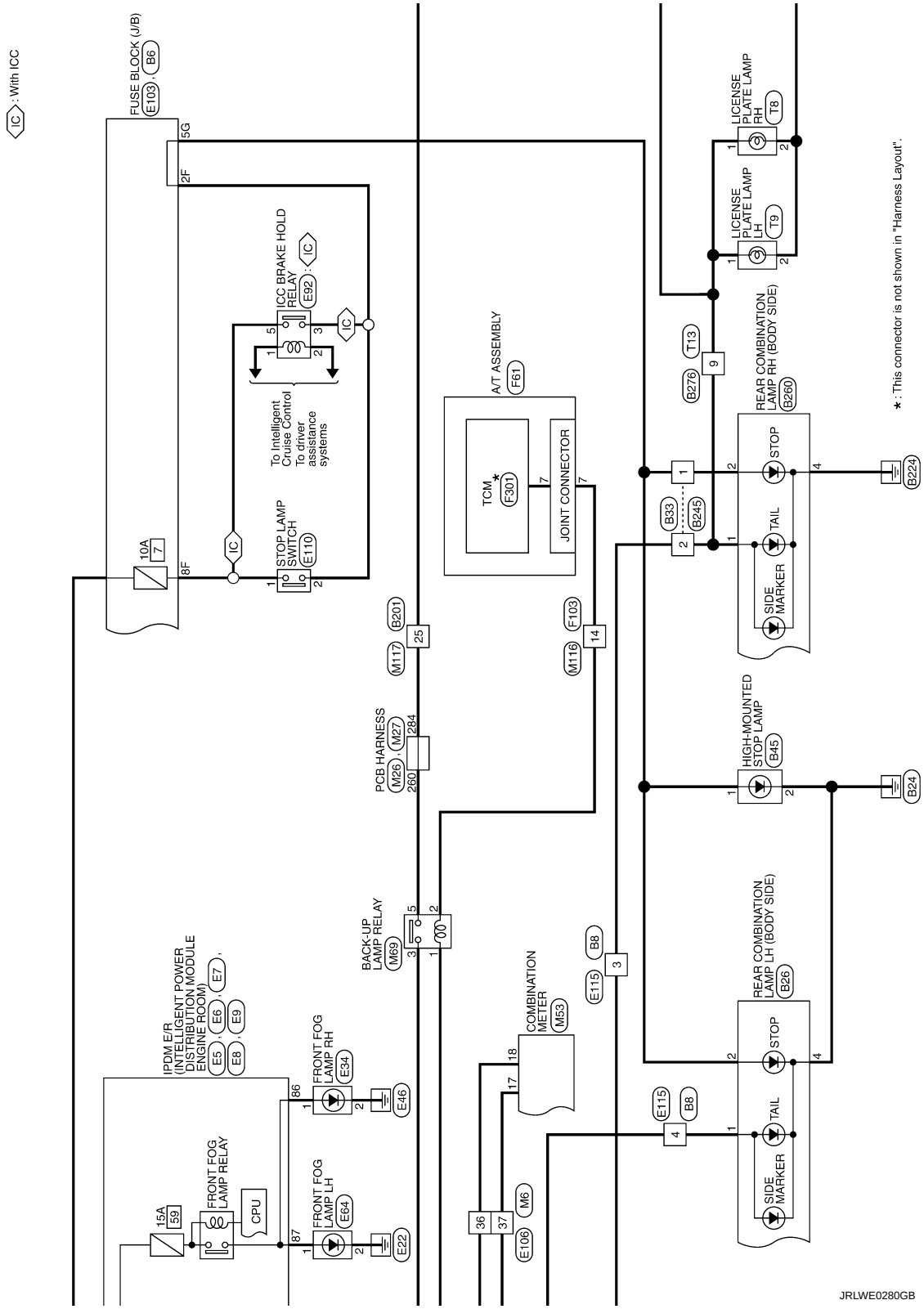
### Wiring Diagram

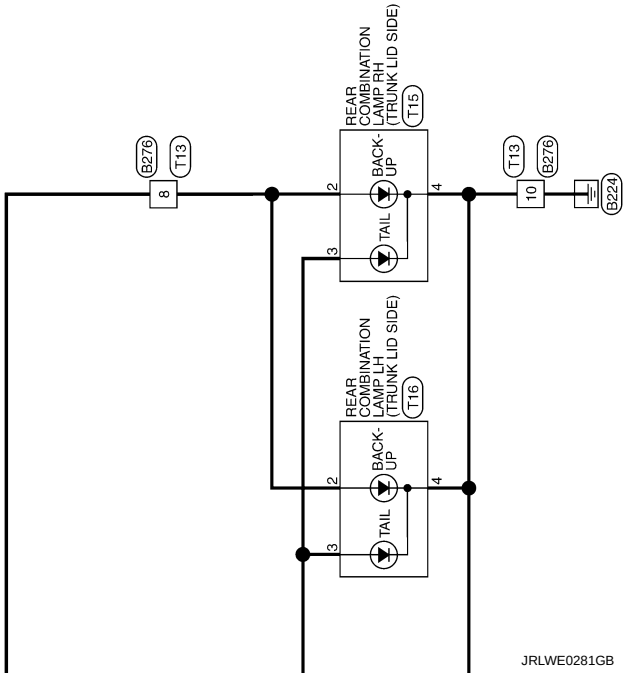
INFOID:0000000011460202




IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E5, E6, E7, E8, E9
CPU
TAIL LAMP RELAY
HEADLAMP LOW RELAY
HEADLAMP HIGH RELAY
DAYTIME RUNNING LIGHT RELAY
10A 52
15A 57
10A 55
15A 56
10A 54
10A 58
15A 51
15A 50
DATA LINE
DATA LINE
FRONT COMBINATION LAMP LH E48
SIDE MARKER LAMP
PARKING LAMP (UPPER SIDE) / DAYTIME RUNNING LIGHT (UPPER SIDE)
PARKING LAMP (LOWER SIDE) / DAYTIME RUNNING LIGHT (LOWER SIDE)
CONTROL CIRCUIT
HEADLAMP HIGH
HEADLAMP LOW
LED HEADLAMP CONTROL MODULE
E22
E46
DOOR MIRROR (DRIVER SIDE) D3
SIDE TURN SIGNAL LAMP
B4
D1
B7
TURN SIGNAL
REAR COMBINATION LAMP LH (BODY SIDE) B26
M7
B1
B24
FRONT TURN SIGNAL LAMP LH E65
FRONT TURN SIGNAL LAMP RH E66
M6
E106
JRLWE0278GB


10A
53
55
IPDM E/R
(INTELLIGENT POWER DISTRIBUTION MODULE
ENGINE ROOM)
E5, E6, E7, E8, E9
DOOR MIRROR (PASSENGER SIDE) D33
SIDE TURN SIGNAL LAMP
B204
D31
55
2
19
D31
2
B204
B202
M117
B201
28
TURN SIGNAL
3
4
REAR COMBINATION LAMP RH (BODY SIDE) B260
B224
FRONT COMBINATION LAMP RH E49
SIDE MARKER LAMP
PARKING LAMP (UPPER SIDE) / DAYTIME RUNNING LIGHT (UPPER SIDE)
PARKING LAMP (LOWER SIDE) / DAYTIME RUNNING LIGHT (LOWER SIDE)
CONTROL CIRCUIT
1
8
4
E46
HEADLAMP HIGH
HEADLAMP LOW
LED HEADLAMP CONTROL MODULE
2
5
7
3
JRLWE0279GB


IC : With ICC
FUSE BLOCK (J/B) E103, B6
5G
2F
8F
10A 7
ICC BRAKE HOLD RELAY E92
STOP LAMP SWITCH E110
To Intelligent Cruise Control
To driver assistance systems
A/T ASSEMBLY F61
TCM* F301
JOINT CONNECTOR
PCB HARNESS M26, M27
B201 M117 25
F103 M116 14
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E5, E6, E7, E8, E9
BACK-UP LAMP RELAY M69
FRONT FOG LAMP RH E34
FRONT FOG LAMP LH E64
FRONT FOG LAMP RELAY
15A 59
CPU
E46
E22
COMBINATION METER M53
M6 E106
B8 E115
LICENSE PLATE LAMP RH T8
LICENSE PLATE LAMP LH T9
T13 B276
REAR COMBINATION LAMP RH (BODY SIDE) B260
B33 B245
HIGH-MOUNTED STOP LAMP B45
REAR COMBINATION LAMP LH (BODY SIDE) B26
STOP
TAIL
SIDE MARKER
B224
B24
* : This connector is not shown in "Harness Layout".
JRLWE0280GB


REAR COMBINATION LAMP RH (TRUNK LID SIDE)
T15
B276
T13
8
BACK-UP
TAIL
2
3
4
T13
B276
10
B224
REAR COMBINATION LAMP LH (TRUNK LID SIDE)
T16
JRLWE0281GB

EXTERIOR LIGHTING SYSTEM

| Connector No. | B1 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FW-CS16-TM4 |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | R | - |
| 2 | W | - |
| 4 | LG | - |
| 5 | P | - |
| 7 | GR | - |
| 8 | Y | - |
| 9 | LG | - |
| 10 | V | - |
| 11 | GR | - [With climate controlled seat] |
| 11 | L | - [With heated seat] |
| 12 | GR | - [With heated seat] |
| 12 | P | - [With climate controlled seat] |
| 13 | BR | - |
| 14 | R | - |
| 15 | O | - |
| 16 | V | - |
| 17 | B | - |
| 18 | R | - |
| 19 | W | - |
| 20 | L | - |
| 21 | B | - |
| 22 | LG | - |
| 23 | V | - |
| 24 | Y | - |
| 25 | G | - |
| 26 | GR | - |
| 27 | SB | - |
| 28 | L/O | - |
| 29 | W/L | - |
| 30 | SHIELD | - |
| 32 | L | - |
| 33 | R | - |
| 34 | G | - |
| 35 | SHIELD | - |
| 36 | G | - |
| 37 | SB | - |
| 40 | SHIELD | - |
| 41 | GRY | - |
| 42 | W/L | - |
| 43 | L | - |
| 44 | B | - |
| 45 | V | - |
| 46 | P | - |
| 47 | O | - |
| 48 | Y | - |
| 49 | BR | - |
| 50 | SB | - |
| 51 | V | - |
| 52 | LG | - |
| 53 | G | - |
| 55 | G | - |
| 56 | P | - |
| 57 | BR | - |
| 58 | LG | - |
| 59 | Y | - |
| 60 | W | - |
| 61 | B | - |
| 62 | LG | - |
| 63 | V | - |
| 65 | O | - |
| 66 | BR | - |
| 67 | V | - |
| 68 | LG | - |
| 69 | GR | - |
| 70 | R | - |
| 72 | L | - |
| 73 | P | - |
| 74 | L | - |
| 75 | P | - |
| 76 | Y | - |
| 77 | R | - |
| 78 | W | - |
| 79 | G | - |
| 81 | LG | - |
| 82 | BR | - |
| 83 | SB | - |
| 84 | Y | - |
| 85 | W | - |
| 86 | R | - |
| 87 | G | - |
| 88 | GR | - |
| 91 | SB | - |
| 92 | G | - |
| 96 | Y | - |
| 97 | O | - |
| 98 | SB | - |
| 99 | LG | - |

| Connector No. | B4 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH40MW-CS15 |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | - |
| 2 | GR | - |
| 3 | B | - |
| 4 | L | - |
| 5 | B/W | - |
| 6 | L | - |
| 7 | R | - |
| 8 | B | - |
| 9 | W | - |
| 10 | LG | - |
| 11 | P | - |
| 12 | GR | - |
| 13 | B/W | - |
| 14 | SB | - |
| 15 | O | - |
| 16 | G | - |
| 17 | Y | - |
| 18 | BR | - |
| 19 | GR | - |
| 20 | O | - |
| 21 | LG | - |
| 22 | L | - |
| 23 | SB | - |
| 24 | V | - |
| 25 | W/L | - |
| 26 | L/O | - |
| 27 | V | - |
| 28 | W | - |
| 29 | SB | - |
| 30 | L | - |
| 31 | LG | - |
| 32 | O | - |
| 33 | V | - |
| 34 | BR | - |
| 35 | B/R | - |
| 36 | P | - |
| 37 | BR | - |
| 38 | W | - |
| 39 | O | - |
| 40 | L | - |
| 41 | W | - |
| 42 | B | - |
| 43 | R | - |
| 44 | G | - |
| 45 | Y | - |
| 46 | V | - |
| 47 | SB | - |
| 48 | GR | - |
| 49 | LG | - |
| 50 | B | - |
| 51 | G | - |
| 52 | R | - |
| 53 | B | - |
| 54 | V | - |
| 55 | SHIELD | - |

| Connector No. | B6 |
|---|---|
| Connector Name | FUSE BLOCK (J/B) |
| Connector Type | NS12FBR-CS |

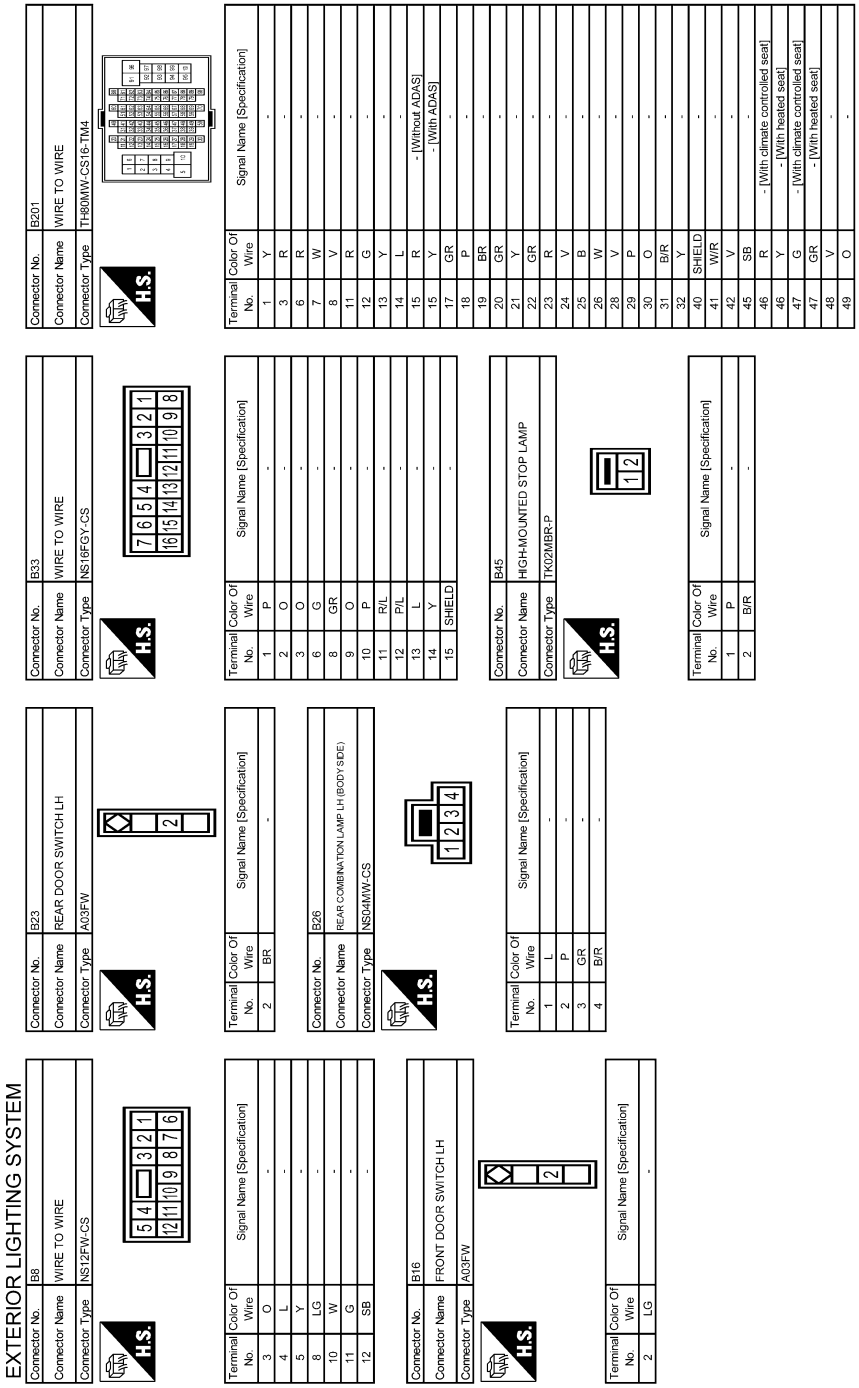
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 10G | W | - |
| 11G | W | - |
| 12G | GR | - |
| 1G | GR | - |
| 2G | G/R | - |
| 4G | L | - |
| 5G | P/L | - |
| 6G | G | - |

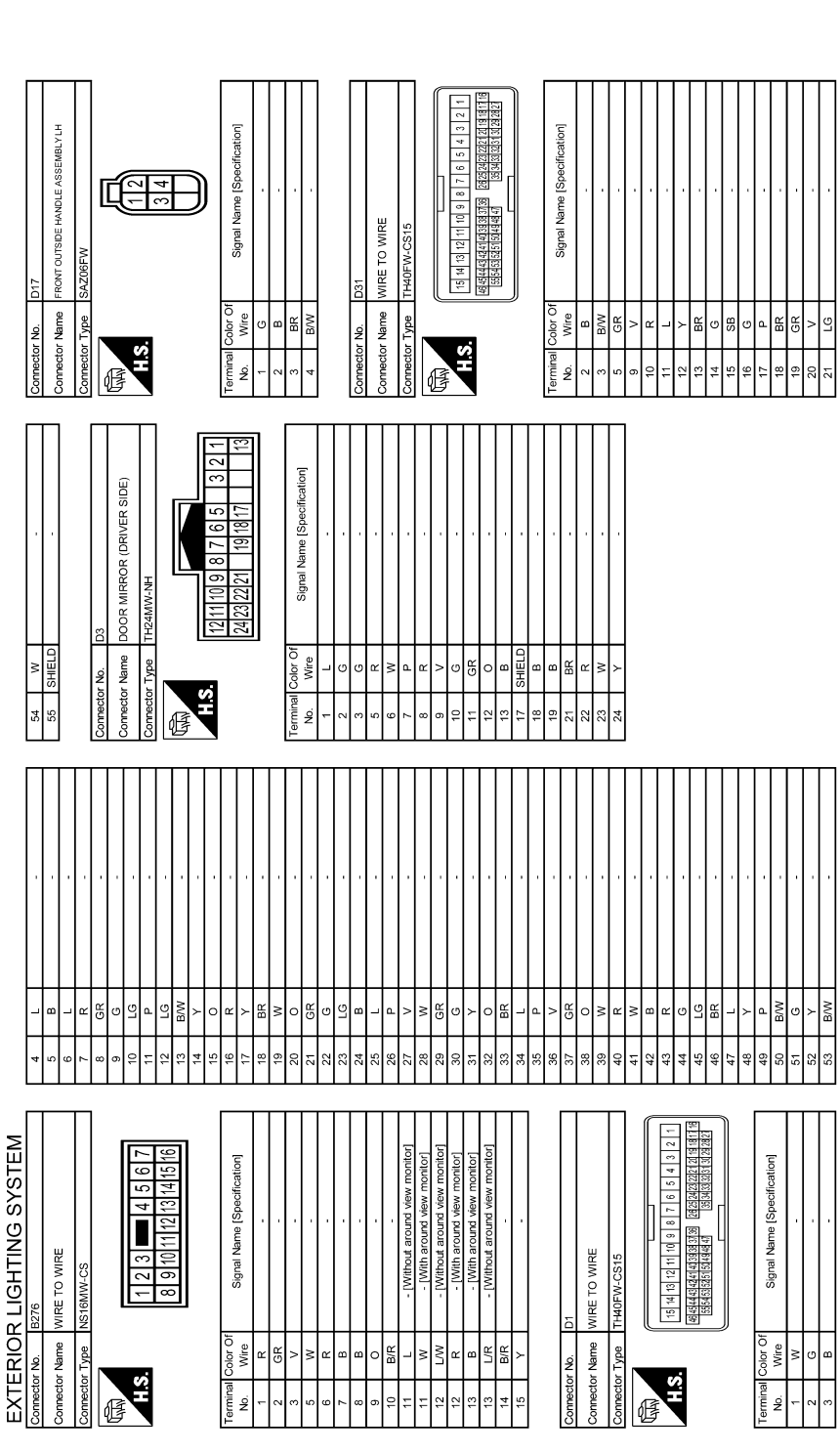
JRLWE0498GB

EXTERIOR LIGHTING SYSTEM

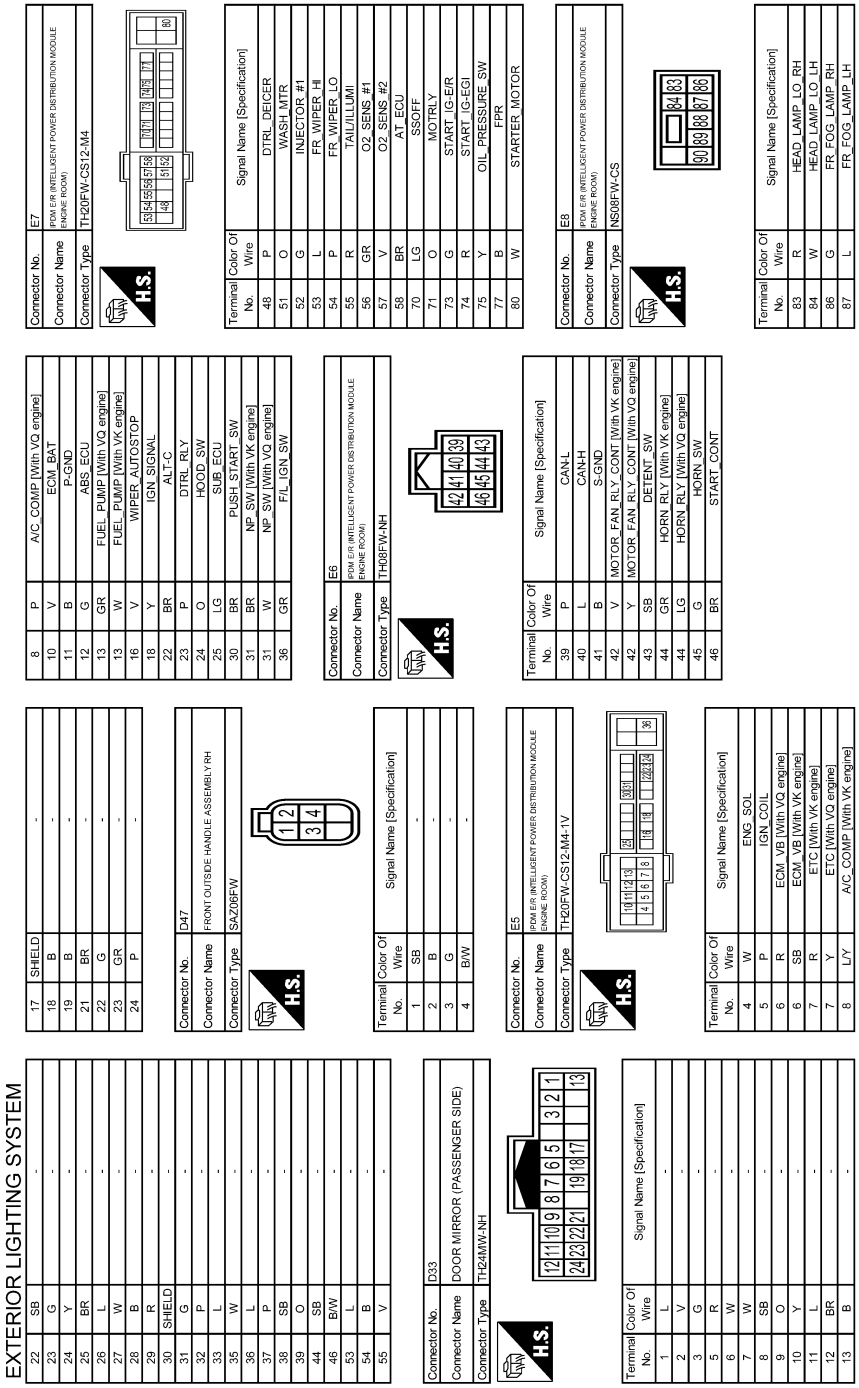



JRLWE0499GB

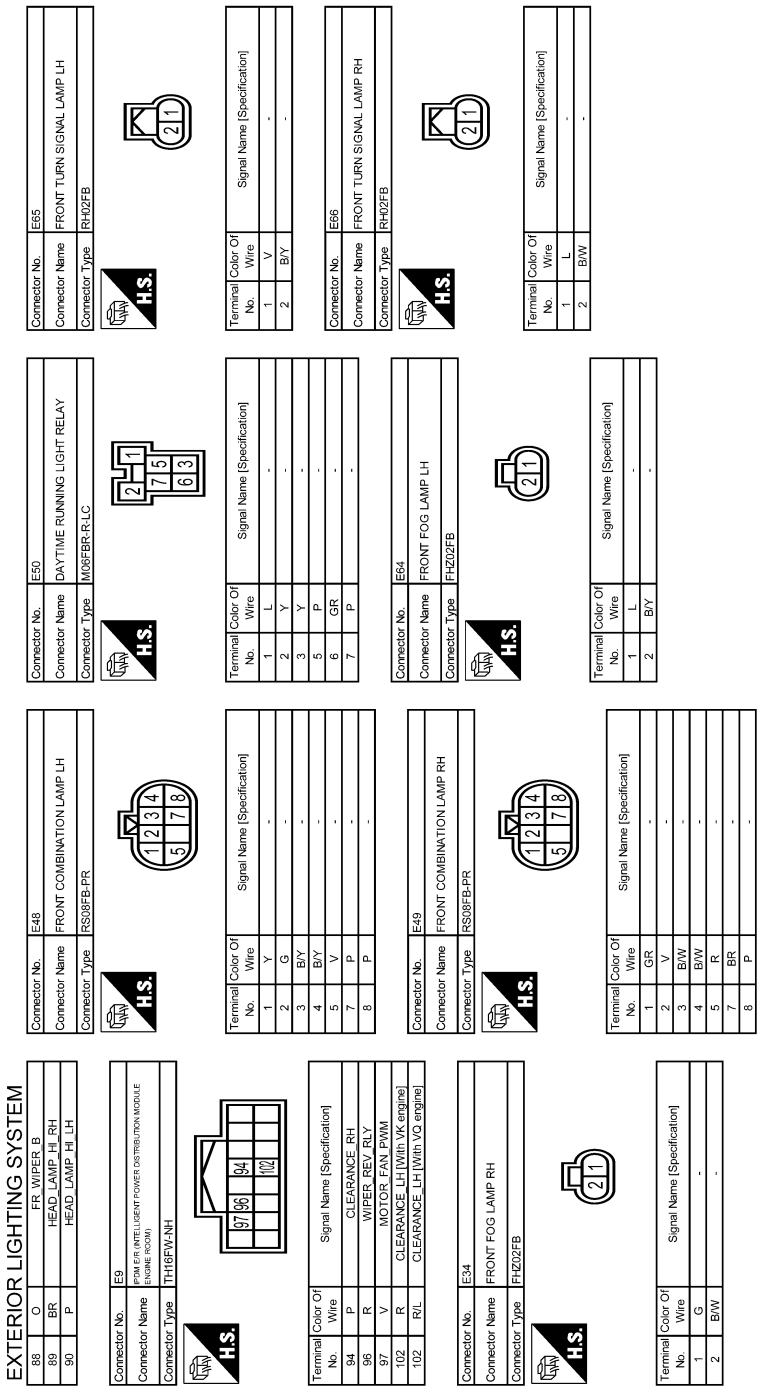
JRLWE0500GB




JRLWE0501GB




JRLWE0502GB




JRLWE0503GB

EXTERIOR LIGHTING SYSTEM

| Connector No. | E92 |
|---|---|
| Connector Name | ICC BRAKE HOLD RELAY |
| Connector Type | MS02FL-M2-LC |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | V | - |
| 2 | LG | - |
| 3 | V | - |
| 5 | W | - |

| Connector No. | E103 |
|---|---|
| Connector Name | FUSE BLOCK (J/B) |
| Connector Type | NS16FW-CS |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 10F | GR | - |
| 12F | Y | - |
| 14F | W | - |
| 15F | V | - |
| 1F | SB | - |
| 2F | LG | - |
| 4F | G | - |
| 6F | O | - |
| 8F | BR | - |
| 9F | R | - |

| Connector No. | E106 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FW-CS16-TM4 |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | P | - |
| 2 | W | - |
| 3 | SB | - |
| 4 | LG | - |
| 5 | O | - |
| 6 | W | - |
| 7 | GR | - |
| 8 | G | - |
| 9 | Y | - |
| 10 | BR | - |
| 11 | SB | - |
| 12 | L | - |
| 13 | GR | - |
| 14 | GR | - |
| 15 | V | - |
| 16 | Y | - |
| 17 | GR | - |
| 18 | V | - |
| 20 | BR | - |
| 21 | P | - |
| 22 | L | - |
| 23 | P | - |
| 27 | SHIELD | - |
| 28 | L/O | - |
| 29 | W/L | - |
| 31 | BR | - |
| 32 | G | - |
| 33 | O | - |
| 34 | Y | - |
| 36 | G | - |
| 37 | V | - |
| 41 | BR | - |
| 44 | W | - |
| 45 | L | - |
| 46 | GR | - |
| 47 | V | - |
| 48 | G | - |
| 49 | O | - |
| 50 | LG | - |
| 54 | R | - |
| 55 | B | - |
| 60 | W | - |
| 61 | G | - |
| 62 | Y | - |
| 63 | BR | - |
| 64 | B | - |
| 65 | Y | - |
| 66 | R | - |
| 67 | SB | - |
| 68 | G | - |
| 69 | SHIELD | - |
| 70 | W | - |
| 71 | W | - |
| 72 | R | - |
| 73 | G | - |
| 74 | Y | - |
| 75 | B | - |
| 76 | SHIELD | - |
| 77 | O | - |
| 78 | SB | - |
| 80 | V | - |
| 82 | SB | - |
| 83 | GR | - |
| 84 | Y | - |
| 85 | Y | - |
| 86 | L | - |
| 87 | V | - |
| 88 | BR | - |
| 89 | LG | - |
| 90 | W | - |
| 91 | W | - |
| 92 | P | - |
| 93 | LG | - |
| 94 | BR | - |
| 95 | W | - |
| 97 | R | - |
| 98 | Y | - |
| 99 | V | - |
| 100 | V | - |

| Connector No. | E110 |
|---|---|
| Connector Name | STOP LAMP SWITCH |
| Connector Type | M04FW-LC |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | - |
| 2 | V | - |
| 3 | G | - [Without ICC] |
| 3 | W | - [With ICC] |
| 4 | SB | - |

| Connector No. | E115 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS12MW-CS |

H.S.

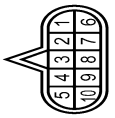



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 3 | R | - |
| 4 | R | - |
| 5 | LG | - |
| 8 | GR | - |
| 10 | P | - [With VQ engine] |
| 10 | W | - [With VK engine] |
| 11 | V | - |
| 12 | Y | - |

JRLWE0504GB

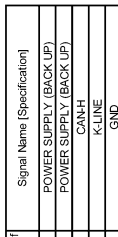
EXTERIOR LIGHTING SYSTEM

| Connector No. | F61 |
|---|---|
| Connector Name | A/T ASSEMBLY |
| Connector Type | RK10FG-DGY |



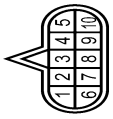
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | Y | POWER SUPPLY (BACK UP) |
| 2 | R | POWER SUPPLY (BACK UP) |
| 3 | L | CAN-H |
| 4 | V | K-LINE |
| 5 | B | GND |
| 6 | G | POWER SUPPLY (IGN) |
| 7 | SB | BACK-UP LAMP RELAY |
| 8 | P | CAN-L |
| 9 | BR | P/N SIGNAL |
| 10 | B | GROUND |

| Connector No. | F103 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TK36FW-NS10 |



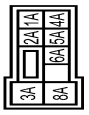
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | L | - |
| 3 | G | - |
| 4 | B | - [With VK engine] |
| 4 | R | - [With VQ engine] |
| 5 | B | - [With VQ engine] |
| 5 | GR | - [With VK engine] |
| 7 | LG | - |
| 8 | Y | - |
| 9 | SB | - [With VQ engine] |
| 9 | W | - [With VK engine] |
| 10 | BR | - [With VK engine] |
| 10 | V | - [With VQ engine] |
| 11 | L | - |
| 12 | P | - |
| 13 | V | - |
| 14 | SB | - |
| 15 | R | - |
| 16 | W | - |
| 17 | GR | - |
| 18 | LG | - |
| 21 | LG | - |
| 22 | B | - |
| 23 | G | - |
| 24 | BR | - |
| 25 | O | - |

| Connector No. | F301 |
|---|---|
| Connector Name | TCM |
| Connector Type | SP10FG |



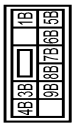
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | - | VIGN |
| 2 | - | BATT |
| 3 | - | CAN-H |
| 4 | - | K LINE |
| 5 | - | GND |
| 6 | - | VIGN |
| 7 | - | REV LAMP RLY |
| 8 | - | CAN-L |
| 9 | - | START RLY |
| 10 | - | GND |

| Connector No. | M1 |
|---|---|
| Connector Name | FUSE BLOCK (J/B) |
| Connector Type | NS06FW-M2 |



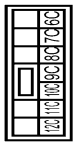
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1A | R | - |
| 2A | W | - |
| 3A | Y | - |
| 4A | W | - |
| 5A | V | - |
| 6A | Y | - |
| 8A | Y | - |

| Connector No. | M2 |
|---|---|
| Connector Name | FUSE BLOCK (J/B) |
| Connector Type | NS10FW-CS |



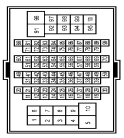
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1B | R | - |
| 3B | P | - |
| 4B | G | - |
| 5B | SB | - |
| 6B | W | - [With VQ engine] |
| 6B | Y | - [With VK engine] |
| 7B | Y | - |
| 8B | R | - |
| 9B | R | - |

| Connector No. | M3 |
|---|---|
| Connector Name | FUSE BLOCK (J/B) |
| Connector Type | NS12FW-CS |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 10C | LG | - |
| 11C | LG | - |
| 12C | O | - |
| 6C | R | - |
| 7C | B | - |
| 8C | B | - |
| 9C | L | - |

| Connector No. | M6 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-CS16-TM4 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | - |
| 2 | W | - |
| 3 | SB | - |
| 4 | LG | - |
| 5 | W | - |
| 6 | W | - |
| 7 | BG | - |
| 8 | G | - |
| 9 | Y | - |
| 10 | W | - |
| 11 | R | - |
| 12 | V | - |
| 13 | LG | - |

JRLWE0505GB

EXTERIOR LIGHTING SYSTEM

| | | |
|---|---|---|
| 14 | L | - |
| 15 | V | - |
| 16 | B | - |
| 17 | GR | - |
| 18 | V | - |
| 20 | SB | - |
| 21 | BR | - |
| 22 | L | - |
| 23 | P | - |
| 27 | SHIELD | - |
| 28 | V | - |
| 29 | SB | - |
| 31 | BG | - |
| 32 | P | - |
| 33 | R | - |
| 34 | BG | - |
| 36 | V | - |
| 37 | G | - |
| 41 | BR | - |
| 44 | BR | - |
| 45 | Y | - |
| 46 | BG | - |
| 47 | V | - |
| 48 | G | - |
| 49 | BG | - |
| 50 | W | - |
| 54 | W | - |
| 55 | G | - |
| 60 | GR | - |
| 61 | B | - |
| 62 | LG | - |
| 63 | BR | - |
| 64 | L | - [With ICC] |
| 64 | SB | - [Without ICC] |
| 65 | R | - [With ICC] |
| 65 | Y | - [Without ICC] |
| 66 | P | - |
| 67 | L | - |
| 68 | R | - |
| 69 | SHIELD | - |
| 70 | B | - |
| 71 | W | - |
| 72 | R | - |
| 73 | G | - |
| 74 | Y | - |
| 75 | B | - |
| 76 | SHIELD | - |
| 77 | B | - |
| 78 | V | - |
| 80 | G | - |

| | | |
|---|---|---|
| 82 | B | - |
| 83 | BG | - |
| 84 | SB | - |
| 85 | Y | - |
| 86 | L | - |
| 87 | V | - |
| 88 | V | - |
| 89 | LG | - |
| 90 | BG | - |
| 91 | W | - |
| 92 | BG | - |
| 93 | G | - |
| 94 | Y | - |
| 95 | W | - |
| 97 | SB | - |
| 98 | R | - |
| 99 | W | - |
| 100 | L | - |

| | |
|---|---|
| Connector No. | M7 |
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-CS16-TM4 |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | - |
| 2 | Y | - |
| 4 | BR | - |
| 5 | P | - |
| 7 | G | - |
| 8 | Y | - |
| 9 | G | - |
| 10 | V | - |
| 11 | L | - [With heated seat] |
| 11 | V | - [With climate controlled seat] |
| 12 | GR | - [With heated seat] |
| 12 | P | - [With climate controlled seat] |
| 13 | BR | - |
| 14 | GR | - |
| 15 | BG | - |
| 16 | V | - |

| | | |
|---|---|---|
| 17 | BG | - |
| 18 | L | - [Without CAN gateway] |
| 18 | Y | - [With CAN gateway] |
| 19 | W | - |
| 20 | L | - |
| 21 | B | - |
| 22 | LG | - |
| 23 | W | - |
| 24 | V | - |
| 25 | G | - |
| 26 | BR | - |
| 27 | SB | - |
| 28 | P | - |
| 29 | L | - |
| 30 | SHIELD | - |
| 32 | L | - |
| 33 | P | - |
| 34 | W | - |
| 35 | SHIELD | - |
| 36 | BG | - |
| 37 | SB | - |
| 41 | SB | - |
| 42 | V | - |
| 43 | L | - |
| 44 | B | - |
| 45 | BG | - |
| 46 | P | - |
| 47 | L | - |
| 48 | LG | - |
| 49 | BR | - |
| 50 | V | - |
| 51 | V | - |
| 52 | P | - |
| 53 | BG | - |
| 55 | G | - |
| 56 | SB | - |
| 57 | P | - |
| 58 | LG | - |
| 59 | Y | - |
| 60 | GR | - |
| 61 | B | - |
| 62 | LG | - |
| 63 | BR | - |
| 65 | W | - |
| 66 | R | - |
| 67 | V | - |
| 68 | LG | - |
| 69 | SB | - |
| 70 | V | - |
| 72 | L | - |

| | | |
|---|---|---|
| 73 | P | - |
| 74 | L | - |
| 75 | P | - |
| 76 | G | - |
| 77 | Y | - |
| 78 | SB | - |
| 79 | W | - |
| 81 | LG | - |
| 82 | BR | - |
| 83 | BG | - |
| 84 | B | - |
| 85 | W | - |
| 86 | G | - |
| 87 | R | - |
| 88 | G | - |
| 91 | W | - |
| 92 | G | - |
| 96 | W | - |
| 97 | BG | - |
| 98 | Y | - |
| 99 | LG | - |

| | |
|---|---|
| Connector No. | M20 |
| Connector Name | PCB HARNESS |
| Connector Type | TH40FB-NH |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | - |
| 2 | B | - |
| 3 | Y | - |
| 4 | G | - |
| 5 | R | - |
| 6 | W | - |
| 11 | BR | - |
| 12 | R | - |
| 15 | B | - |
| 16 | SHIELD | - |
| 17 | R | - |
| 18 | P | - |
| 19 | W | - |

JRLWE0506GB

EXTERIOR LIGHTING SYSTEM

| | | |
|---|---|---|
| 21 | B | - |
| 22 | R | - [With ICC] |
| 22 | Y | - [Without ICC] |
| 23 | L | - [With ICC] |
| 23 | SB | - [Without ICC] |
| 24 | L | - |
| 27 | P | - |
| 31 | V | - |
| 33 | V | - |
| 35 | L | - |
| 36 | P | - |
| 38 | L | - |
| 40 | Y | - |

| | |
|---|---|
| Connector No. | M22 |
| Connector Name | PCB HARNESS |
| Connector Type | TH40FB-NH |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 81 | L | - |
| 82 | P | - |
| 83 | B | - |
| 84 | B | - |
| 85 | B | - |
| 86 | B | - |
| 87 | B | - |
| 88 | B | - |
| 89 | Y | - |
| 91 | V | - |
| 92 | V | - |
| 93 | B | - |
| 94 | B | - |
| 95 | LG | - |
| 96 | BR | - |
| 97 | G | - |
| 98 | G | - |
| 99 | G | - |
| 100 | G | - |
| 101 | L | - |
| 102 | P | - |

| | | |
|---|---|---|
| 103 | B | - |
| 104 | BR | - |
| 105 | R | - |
| 107 | Y | - |
| 108 | Y | - |
| 109 | BR | - |
| 110 | Y | - |
| 112 | B | - |
| 113 | P | - |
| 114 | L | - |
| 116 | B | - |
| 117 | B | - [With VK engine] |
| 117 | BG | - [With VQ engine] |
| 118 | B | - |
| 119 | LG | - |
| 120 | V | - |

| | |
|---|---|
| Connector No. | M24 |
| Connector Name | PCB HARNESS |
| Connector Type | TH40FW-NH |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 161 | BG | - |
| 162 | BG | - |
| 164 | V | - |
| 165 | V | - |
| 166 | R | - |
| 167 | LG | - |
| 169 | R | - |
| 171 | BG | - |
| 172 | B | - |
| 174 | W | - |
| 176 | L | - |
| 177 | P | - |
| 178 | Y | - |
| 179 | L | - |
| 180 | LG | - |
| 182 | BR | - [With VQ engine or with VK engine without ICC] |
| 182 | R | - [With VK engine with ICC] |
| 183 | G | - |

| | | |
|---|---|---|
| 184 | V | - |
| 185 | P | - |
| 186 | R | - |
| 187 | L | - [Without CAN gateway] |
| 187 | Y | - [With CAN gateway] |
| 188 | L | - |
| 189 | B | - |
| 190 | V | - |
| 191 | LG | - |
| 192 | B | - |
| 193 | SB | - |
| 194 | BR | - |
| 195 | SB | - |
| 198 | R | - |
| 199 | B | - |
| 200 | SB | - |

| | |
|---|---|
| Connector No. | M26 |
| Connector Name | PCB HARNESS |
| Connector Type | TH40FW-NH |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 241 | L | - |
| 242 | L | - |
| 243 | R | - [With ICC] |
| 243 | Y | - [Without ICC] |
| 244 | L | - [With ICC] |
| 244 | SB | - [Without ICC] |
| 245 | B | - |
| 246 | B | - |
| 247 | B | - |
| 248 | SHIELD | - |
| 251 | SHIELD | - |
| 252 | B | - |
| 253 | B | - |
| 254 | B | - [With heated seat] |
| 254 | W | - [With climate controlled seat] |
| 255 | B | - |
| 258 | R | - |
| 259 | L | - |

| | | |
|---|---|---|
| 260 | BG | - |
| 261 | P | - |
| 262 | P | - |
| 267 | P | - |
| 268 | Y | - |
| 269 | G | - |
| 270 | Y | - |
| 271 | BR | - |
| 272 | G | - |
| 273 | R | - |
| 274 | R | - |
| 275 | Y | - |
| 276 | B | - |
| 277 | G | - |
| 278 | R | - |
| 279 | R | - |
| 280 | Y | - |

| | |
|---|---|
| Connector No. | M27 |
| Connector Name | PCB HARNESS |
| Connector Type | TH40FB-NH |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 281 | O | - |
| 282 | BG | - |
| 283 | BG | - |
| 284 | BG | - |
| 286 | W | - |
| 287 | Y | - |
| 289 | SHIELD | - |
| 290 | B | - |
| 291 | SHIELD | - |
| 292 | B | - |
| 293 | B | - |
| 294 | B | - |
| 295 | B | - |
| 296 | GR | - |
| 297 | B | - |
| 298 | B | - |
| 299 | L | - |

JRLWE0507GB

EXTERIOR LIGHTING SYSTEM

| | | |
|---|---|---|
| 300 | W | - |
| 301 | R | - |
| 302 | R | - |
| 303 | R | - |
| 304 | SHIELD | - |
| 305 | P | - |
| 306 | V | - |
| 309 | G | - |
| 310 | R | - |
| 311 | W | - |
| 312 | B | - |
| 313 | B | - |
| 314 | Y | - |
| 315 | G | - |
| 316 | R | - |
| 317 | W | - |
| 318 | SHIELD | - |
| 319 | V | - |
| 320 | W | - |

| | |
|---|---|
| Connector No. | M30 |
| Connector Name | PCB HARNESS |
| Connector Type | TH40FW-NH |

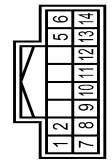
H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 402 | R | - |
| 403 | R | - |
| 406 | B | - |
| 407 | V | - |
| 408 | B | - |
| 409 | B | - |
| 410 | B | - |
| 411 | B | - |
| 413 | Y | - |
| 414 | BR | - |
| 416 | LG | - |
| 417 | B | - |
| 419 | SB | - |
| 420 | SHIELD | - |
| 422 | V | - |

| | |
|---|---|
| 427 | P |
| 428 | V |
| 429 | P |
| 430 | LG |
| 431 | B |
| 432 | Y |
| 435 | V |
| 436 | BG |
| 437 | B |
| 438 | P |
| 439 | L |
| 440 | B |

| | |
|---|---|
| Connector No. | M33 |
| Connector Name | COMBINATION SWITCH |
| Connector Type | TH16FW-NH |

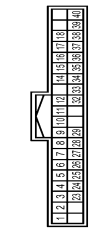
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | FR WASHER (-) |
| 2 | SB | OUTPUT 4 |
| 5 | L | OUTPUT 3 |
| 6 | B | GND |
| 7 | V | INPUT 3 |
| 8 | BG | OUTPUT 5 |
| 9 | Y | INPUT 2 |
| 10 | R | INPUT 4 |
| 11 | LG | INPUT 1 |
| 12 | P | OUTPUT 1 |
| 13 | BR | INPUT 5 |
| 14 | G | OUTPUT 2 |

| | |
|---|---|
| Connector No. | M53 |
| Connector Name | COMBINATION METER |
| Connector Type | TH40FW-NH |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | BATTERY POWER SUPPLY |
| 2 | BG | IGNITION SIGNAL |
| 3 | GR | VEHICLE SPEED SIGNAL (2-PULSE) |
| 4 | R | VEHICLE SPEED SIGNAL (8-PULSE) |
| 5 | B | ILLUMINATION CONTROL SIGNAL |
| 6 | B | METER CONTROL SWITCH GROUND |
| 7 | SB | ENTER SWITCH SIGNAL |
| 8 | LG | SELECT SWITCH SIGNAL |
| 9 | G | ILLUMINATION CONTROL SWITCH SIGNAL (+) |
| 10 | GR | ILLUMINATION CONTROL SWITCH SIGNAL (-) |
| 11 | L | TRIP RESET SWITCH SIGNAL |
| 12 | B | GROUND |
| 14 | L | CAN-H |
| 15 | P | CAN-L |
| 16 | R | AIR BAG SIGNAL |
| 17 | G | LED HEADLAMP (RH) WARNING SIGNAL |
| 18 | V | LED HEADLAMP (LH) WARNING SIGNAL |
| 23 | B | GROUND |
| 24 | B | FUEL LEVEL SENSOR GROUND |
| 25 | W | ALTERNATOR SIGNAL |
| 26 | V | PARKING BRAKE SWITCH SIGNAL |
| 27 | V | BRAKE FLUID LEVEL SWITCH SIGNAL |
| 28 | G | SECURITY SIGNAL |
| 29 | L | WASHER LEVEL SWITCH SIGNAL |
| 32 | G | PADDLE SHIFTER SHIFT DOWN SIGNAL |
| 33 | BG | PADDLE SHIFTER SHIFT UP SIGNAL |
| 34 | G | FUEL LEVEL SENSOR SIGNAL |
| 35 | W | SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE) |
| 36 | G | PASSENGER SEAT BELT WARNING SIGNAL |
| 37 | G | NON-MANUAL MODE SIGNAL |
| 38 | V | MANUAL MODE SHIFT DOWN SIGNAL |
| 39 | L | MANUAL MODE SHIFT UP SIGNAL |
| 40 | W | MANUAL MODE SIGNAL |

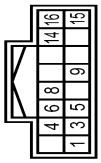
| | |
|---|---|
| Connector No. | M69 |
| Connector Name | BACK-UP LAMP RELAY |
| Connector Type | MS02FL-M2-LC |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | LG | - |
| 2 | R | - |
| 3 | BR | - |
| 5 | BG | - |

| | |
|---|---|
| Connector No. | M72 |
| Connector Name | MULTIFUNCTION SWITCH |
| Connector Type | TH16FW-NH |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | GND |
| 3 | V | ACC |
| 4 | R | ILL |
| 5 | B | ILL CONT |
| 6 | SB | AV COMM (H) |
| 8 | LG | AV COMM (L) |
| 9 | BR | S/W GND |
| 14 | SB | DISK EJECT SIGNAL |
| 15 | R | AIR BAG CUT OFF |
| 16 | G | HAZARD ON |

JRLWE0508GB

EXTERIOR LIGHTING SYSTEM

| Connector No. | M94 |
|---|---|
| Connector Name | OPTICAL SENSOR |
| Connector Type | TK03FW |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | Y | POWER |
| 2 | W | OUTPUT |
| 3 | B | GND |

| Connector No. | M104 |
|---|---|
| Connector Name | REMOTE KEYLESS ENTRY RECEIVER |
| Connector Type | TH04FW-NH |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | GND |
| 2 | BR | SIGNAL OUTPUT |
| 3 | GR | RSSI |
| 4 | R | BATTERY |

| Connector No. | M107 |
|---|---|
| Connector Name | ECM |
| Connector Type | RH24FGY-R23-R-RH-Z |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 97 | R | ACCELERATOR PEDAL POSITION SENSOR 1 |
| 98 | Y | ACCELERATOR PEDAL POSITION SENSOR 2 |
| 99 | G | SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1) |
| 100 | W | SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 1) |
| 101 | SB | ASCD STEERING SWITCH |
| 102 | P | FUEL TANK PRESSURE SENSOR |
| 103 | L | SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2) |
| 104 | B | SENSOR GROUND [Without ICC] |
| 105 | BR | SENSOR GROUND [With ICC] |
| 106 | LG | REFRIGERANT PRESSURE SENSOR |
| 107 | P | FUEL TANK TEMPERATURE SENSOR |
| 108 | BG | AVCC2 PDPRES/FTPRES |
| 109 | Y | GND ASCD SW |
| 110 | BR | TRANSMISSION RANGE SWITCH |
| 112 | V | ENGINE SPEED SIGNAL OUTPUT |
| 113 | Y | GNDA PDPRES/FTPRES |
| 114 | P | CAN COMMUNICATION LINE |
| 117 | L | CAN COMMUNICATION LINE |
| 121 | V | DATA LINK CONNECTOR |
| 122 | G | EVAP CANISTER VENT CONTROL VALVE |
| 123 | P | STOP LAMP SWITCH |
| 124 | B | ECM GROUND |
| 125 | SB | POWER SUPPLY FOR ECM |
| 126 | BR | ASCD BRAKE SWITCH |
| 127 | B | ECM GROUND |
| 128 | B | ECM GROUND |

| Connector No. | M116 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TK36MW-NS10 |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | SB | - |
| 3 | Y | - |
| 4 | B | - [With VK engine] |
| 4 | SB | - [With VQ engine] |
| 5 | B | - |
| 7 | W | - |
| 8 | Y | - |
| 9 | SB | - [With VQ engine] |
| 9 | W | - [With VK engine] |
| 10 | SB | - |
| 11 | L | - |
| 12 | P | - |
| 13 | V | - |
| 14 | R | - |
| 15 | Y | - |
| 16 | SB | - |
| 17 | BR | - |
| 18 | LG | - |
| 21 | LG | - |
| 22 | B | - |
| 23 | W | - |
| 24 | W | - |
| 25 | BG | - |

| Connector No. | M117 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FW-CS16-TM4 |

H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | Y | - |
| 3 | Y | - |
| 6 | R | - |
| 7 | W | - |
| 8 | V | - |
| 11 | R | - |
| 12 | G | - |
| 13 | W | - |
| 14 | L | - |
| 15 | R | - [Without ADAS] |
| 15 | Y | - [With ADAS] |
| 17 | GR | - |
| 18 | P | - |
| 19 | BR | - |
| 20 | GR | - |
| 21 | Y | - |
| 22 | LG | - |
| 23 | R | - |
| 24 | BG | - |
| 25 | BG | - |
| 26 | W | - |
| 28 | V | - |
| 29 | P | - |
| 30 | B | - |
| 31 | G | - |
| 32 | Y | - |
| 40 | SHIELD | - |
| 41 | R | - |
| 42 | V | - |
| 45 | SB | - |
| 46 | BG | - [With heated seat] |
| 46 | L | - [With climate controlled seat] |
| 47 | G | - [With climate controlled seat] |
| 47 | GR | - [With heated seat] |
| 48 | V | - |
| 49 | BG | - |

JRLWE0509GB

EXTERIOR LIGHTING SYSTEM

| | | |
|---|---|---|
| 50 | LG | - |
| 51 | SB | - |
| 52 | Y | - |
| 53 | W | - |
| 56 | B | - |
| 57 | G | - |
| 58 | R | - |
| 59 | W | - |
| 61 | LG | - |
| 62 | V | - |
| 63 | R | - |
| 64 | SB | - |
| 65 | LG | - |
| 66 | L | - |
| 67 | Y | - |
| 68 | SB | - |
| 69 | B | - |
| 71 | L | - |
| 72 | L | - |
| 73 | P | - |
| 74 | B | - |
| 75 | L | - |
| 76 | SHIELD | - |
| 77 | G | - |
| 78 | R | - |
| 79 | L | - |
| 80 | G | - |
| 81 | BG | - |
| 82 | BR | - |
| 83 | GR | - |
| 84 | V | - |
| 85 | LG | - |
| 86 | V | - |
| 87 | R | - |
| 88 | Y | - |
| 89 | BR | - |
| 90 | L | - |
| 91 | Y | - |
| 93 | G | - [With heated seat] |
| 93 | W | - [With climate controlled seat] |
| 94 | V | - |
| 96 | W | - |
| 97 | Y | - |
| 98 | BR | - |
| 99 | G | - |
| 100 | Y | - |

| | |
|---|---|
| Connector No. | M120 |
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH40FB-NH |

H.S.

| 1 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 11 | 14 | 16 | 17 | 18 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 22 | 23 | 24 | 25 | 26 | 28 | 29 | 31 | 33 | 34 | 35 | 36 | 37 | 39 | 40 |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | RR WINDOW DEFG RLY CONT |
| 2 | BG | COMBI SW INPUT 5 |
| 3 | SB | COMBI SW INPUT 4 |
| 4 | L | COMBI SW INPUT 3 |
| 5 | G | COMBI SW INPUT 2 |
| 6 | P | COMBI SW INPUT 1 |
| 8 | V | POWER WINDOW SW COMM |
| 9 | P | STOP LAMP SW 1 |
| 11 | R | RAIN SENSOR SERIAL LINK |
| 14 | W | OPTICAL SENSOR |
| 16 | SB | DIMMER SIGNAL |
| 17 | Y | SENSOR PWR SPLY |
| 18 | B | RECEIVER / SENSOR GND |
| 19 | V | TURN SIG RH OUTPUT (FRONT) |
| 20 | G | TURN SIG LH OUTPUT (FRONT) |
| 21 | P | NATS ANT AMP |
| 22 | GR | KYLS ENT RECEIVER RSSI |
| 23 | G | SECURITY IND CONT |
| 24 | L | DONGLE LINK |
| 25 | G | NATS ANT AMP |
| 26 | G | I-KEY IDENTIFICATION |
| 29 | G | HAZARD SW |
| 30 | O | TR LID OPNR SW |
| 31 | W | DR DOOR UNLK SENSOR |
| 32 | BR | COMBI SW OUTPUT 5 |
| 33 | R | COMBI SW OUTPUT 4 |
| 34 | V | COMBI SW OUTPUT 3 |
| 35 | Y | COMBI SW OUTPUT 2 |
| 36 | LG | COMBI SW OUTPUT 1 |
| 37 | R | P POSITION |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

| | |
|---|---|
| Connector No. | M121 |
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | FEA05FB-FHA6-SA |

H.S.

| 41 | 42 | 44 | 45 | 46 | 47 | 48 | 49 |
|---|---|---|---|---|---|---|---|
| | 51 | | 53 | | | 55 | |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 41 | W | TR KEY CYLINDER SW |
| 42 | R | TRUNK LID OPEN/CLOSE STATUS |
| 44 | V | TR LID OP CANCEL SW |
| 45 | GR | PASSENGER DOOR SW |
| 46 | BR | REAR RH DOOR SW |
| 47 | LG | DRIVER DOOR SW |
| 48 | P | REAR LH DOOR SW |
| 49 | SB | TR ROOM LAMP CONT |
| 51 | BG | TR LID OPEN REQ SW |
| 53 | LG | TRUNK LID OPEN REQUEST |
| 55 | BR | RR DOOR UNLK OUTPUT |

| | |
|---|---|
| Connector No. | M122 |
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | FEA05FW-FHA6-SA |

H.S.

| 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 |
|---|---|---|---|---|---|---|---|
| 65 | 66 | 67 | 68 | 69 | 70 | | |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 56 | R | INT ROOM LAMP PWR SPLY |
| 57 | R | BAT (FUSE) |
| 58 | L | SENS CANCEL SW |
| 59 | G | PASS DOOR UNLK OUTPUT |
| 60 | G | TURN SIG LH OUTPUT (SIDE, REAR) |
| 61 | V | TURN SIG RH OUTPUT (SIDE, REAR) |
| 62 | V | STEP LAMP CONT |
| 63 | L | ROOM LAMP TIMER CONT |
| 65 | V | ALL DOOR, FL LID LOCK OUTPUT |
| 66 | LG | DR DOOR, FL LID UNLK OUTPUT |
| 67 | B | GND |
| 68 | O | PW PWR SPLY (IGN) |
| 69 | Y | PW PWR SPLY (BAT) |
| 70 | W | BAT (F/L) |

| | |
|---|---|
| Connector No. | M123 |
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH40FW-NH |

H.S.

| 71 | 72 | 73 | 75 | 76 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 91 | 92 | 93 | 96 | 97 | 98 | 99 | 100 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 71 | BR | KYLS ENT RECEIVER COMM |
| 72 | B | OUTS HD LAMP OUTPUT |
| 73 | V | ON IND |
| 75 | G | DR DOOR REQ SW |
| 76 | BR | PUSH SW |
| 78 | BR | DRIVER DOOR ANT+ |
| 79 | SB | DRIVER DOOR ANT- |
| 80 | LG | PASSENGER DOOR ANT+ |
| 81 | V | PASSENGER DOOR ANT- |
| 82 | V | REAR BMPR ANT+ |
| 83 | SB | REAR BMPR ANT- |
| 84 | BR | ROOM ANT1+ |
| 85 | Y | ROOM ANT1- |
| 86 | R | ROOM ANT2+ |
| 87 | G | ROOM ANT2- |
| 88 | V | TRUNK ROOM ANT+ |
| 89 | SB | TRUNK ROOM ANT- |
| 90 | R | PUSH-BTN IGN SW ILL PWR |
| 91 | GR | LOCK IND |
| 92 | B | PUSH-BTN IGN SW ILL GND |
| 93 | V | I-KEY WARN BUZZER |
| 96 | SB | ACC RELAY CONT |
| 97 | SB | STARTER RELAY CONT |
| 98 | B | IGN RELAY (IPDM E/R) CONT |
| 99 | R | IGN RELAY (F/B) CONT |
| 100 | SB | PASS DOOR REQ SW |
| 102 | BR | P/N POSITION |
| 103 | GR | A/T SHIFT SELECT PWR SPLY |
| 104 | GR | STOP LAMP SW 2 |
| 105 | R | STOP LAMP SW 2 |

JRLWE0510GB

EXTERIOR LIGHTING SYSTEM

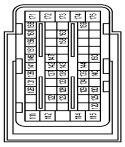
| | | |
|---|---|---|
| 106 | B | BLWR RELAY CONT |
| 109 | Y | ACC IND |
| 110 | R | RECEIVER PWR SPLY |

| | |
|---|---|
| Connector No. | M147 |
| Connector Name | AIR BAG DIAGNOSIS SENSOR UNIT |
| Connector Type | NH28FY-EX |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | LG | IGN |
| 2 | B | GND |
| 3 | Y | DR1 (+) |
| 4 | Y | DR1 (-) DR2 (-) |
| 5 | Y | DR2 (+) |
| 6 | Y | AS1 (+) |
| 7 | Y | AS1 (-) |
| 8 | Y | AS2 (+) |
| 9 | Y | AS2 (-) |
| 18 | SB | ECZS (+) |
| 19 | V | ECZS (-) |
| 22 | SHIELD | GND |
| 23 | R | AIR BAG W/L |
| 24 | G | SEAT BELT |
| 25 | R | CUTOFF TELLTALE |
| 51 | G | SATELLITE RH2 (+) |
| 52 | R | SATELLITE RH2 (-) |
| 53 | P | SATELLITE RH2 (+) |
| 54 | L | SATELLITE RH2 (-) |
| 57 | L | IVCS |
| 59 | L | CAN-H |
| 60 | P | CAN-L |

| | |
|---|---|
| Connector No. | M160 |
| Connector Name | ECM |
| Connector Type | MAB55FB-MEB10-LH-Z |

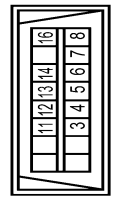


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 111 | W | FUEL INJECTOR DRIVER POWER SUPPLY |
| 112 | W | FUEL INJECTOR DRIVER POWER SUPPLY |
| 114 | B | ECM GROUND |
| 115 | B | ECM GROUND |
| 120 | G | EVAP CANISTER VENT CONTROL VALVE |
| 122 | V | VIAS: ACTUATOR MOTOR RELAY ASSIST SIGNAL (VIAS CONTROL MODULE) |
| 123 | BG | THROTTLE CONTROL MOTOR RELAY |
| 125 | P | FUEL PUMP CONTROL MODULE (FPCM) |
| 126 | Y | ACCELERATOR PEDAL POSITION SENSOR 2 |
| 128 | SB | ASCD STEERING SWITCH |
| 129 | B | SENSOR GROUND [Without ICC] |
| 129 | BR | SENSOR GROUND [With ICC] |
| 130 | Y | SENSOR GROUND |
| 131 | L | SENSOR POWER SUPPLY |
| 133 | BG | SENSOR POWER SUPPLY |
| 134 | P | FUEL TANK TEMPERATURE SENSOR |
| 136 | R | ACCELERATOR PEDAL POSITION SENSOR 1 |
| 137 | G | SENSOR POWER SUPPLY |
| 138 | P | BATTERY CURRENT SENSOR |
| 139 | BG | BATTERY TEMPERATURE SENSOR |
| 140 | W | SENSOR GROUND |
| 141 | G | IGNITION SWITCH |
| 142 | GR | FUEL PUMP CONTROL MODULE (FPCM) CHECK |
| 143 | P | FUEL TANK PRESSURE SENSOR |
| 144 | LG | REFRIGERANT PRESSURE SENSOR |
| 146 | L | CAN COMMUNICATION LINE |
| 147 | BR | ASCD BRAKE SWITCH |
| 150 | V | SENSOR GROUND |
| 151 | P | CAN COMMUNICATION LINE |
| 156 | W | POWER SUPPLY FOR ECM (BACK-UP) |
| 158 | P | STOP LAMP SWITCH |
| 161 | Y | ENG COMMUNICATION LINE |
| 163 | W | ECM RELAY (SELF SHUT-OFF) |
| 166 | BG | ENG COMMUNICATION LINE |
| 169 | V | ENGINE SPEED SIGNAL OUTPUT |
| 171 | SB | POWER SUPPLY FOR ECM |

| | |
|---|---|
| 172 | SB |
| 173 | R |
| 174 | B |
| 175 | B |

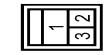
| | |
|---|---|
| | POWER SUPPLY FOR ECM |
| | THROTTLE CONTROL MOTOR POWER SUPPLY |
| | ECM GROUND |
| | ECM GROUND |

| | |
|---|---|
| Connector No. | M182 |
| Connector Name | DATA LINK CONNECTOR |
| Connector Type | BD16FW |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 3 | LG | M-CAN L |
| 4 | B | EARTH |
| 5 | B | EARTH |
| 6 | L | CAN-H |
| 7 | V | KLINE |
| 8 | LG | IGN_SW |
| 11 | SB | M-CAN H |
| 12 | P | CAN-L |
| 13 | L | CAN-H |
| 14 | P | CAN-L |
| 16 | W | POWER |

| | |
|---|---|
| Connector No. | M221 |
| Connector Name | WIRE TO WIRE |
| Connector Type | M03FW-LC |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | - |
| 2 | R | - |
| 3 | W | - |

| | |
|---|---|
| Connector No. | M222 |
| Connector Name | WIRE TO WIRE |
| Connector Type | M03MW-LC |



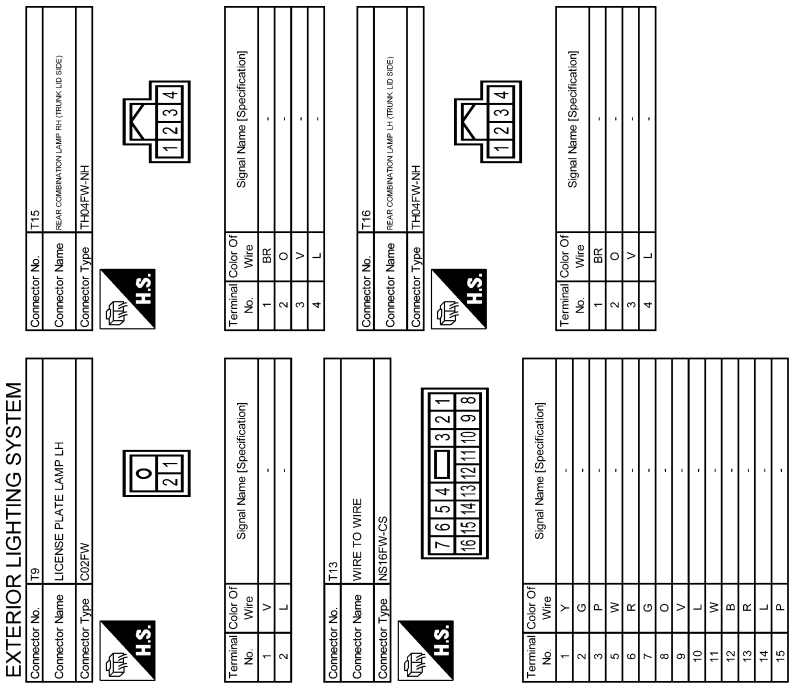
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | - |
| 2 | R | - |
| 3 | Y | - |

| | |
|---|---|
| Connector No. | T8 |
| Connector Name | LICENSE PLATE LAMP RH |
| Connector Type | C02FW |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | V | - |
| 2 | L | - |

JRLWE0511GB

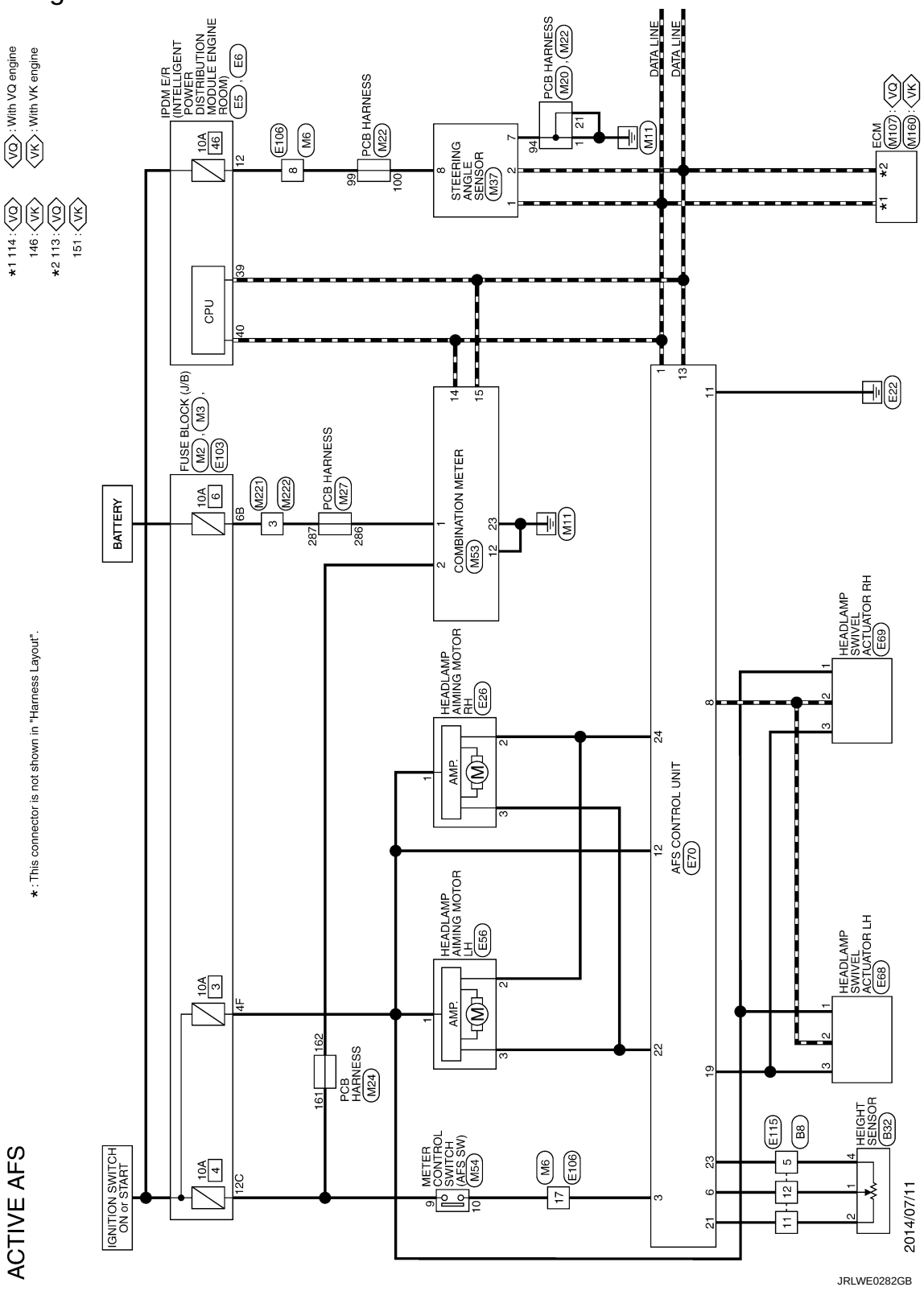


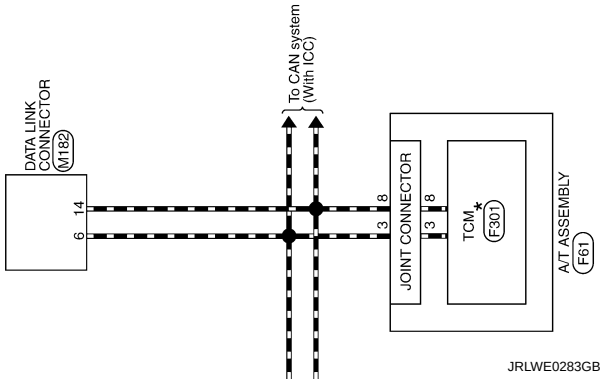

JRLWE0512GB

# ACTIVE ADAPTIVE FRONT-LIGHTING SYSTEM

## Wiring Diagram

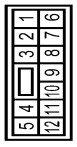
INFOID:0000000011460354




To CAN system
(With ICC)
DATA LINK
CONNECTOR
M182
6
14
3
8
JOINT CONNECTOR
3
8
TCM*
F301
A/T ASSEMBLY
F61
JRLWE0283GB

ACTIVE AFS

| Connector No. | B8 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS12FW-CS |



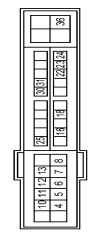
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 3 | O | - |
| 4 | L | - |
| 5 | Y | - |
| 8 | LG | - |
| 10 | W | - |
| 11 | G | - |
| 12 | SB | - |

| Connector No. | B32 |
|---|---|
| Connector Name | HEIGHT SENSOR |
| Connector Type | AAZ06FB1 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | SB | - |
| 2 | G | - |
| 4 | Y | - |

| Connector No. | E5 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | TH20FW-CS12-M4-1V |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 4 | W | ENG_SOL |
| 5 | P | IGN_COIL |
| 6 | R | ECM_VB [With VQ engine] |
| 6 | SB | ECM_VB [With VK engine] |
| 7 | R | ETC [With VK engine] |
| 7 | Y | ETC [With VQ engine] |
| 8 | L/Y | A/C_COMP [With VK engine] |
| 8 | P | A/C_COMP [With VQ engine] |
| 10 | V | ECM_BAT |
| 11 | B | P-GND |
| 12 | G | ABS_ECU |
| 13 | GR | FUEL_PUMP [With VQ engine] |
| 13 | W | FUEL_PUMP [With VK engine] |
| 16 | V | WIPER_AUTOSTOP |
| 18 | Y | IGN_SIGNAL |
| 22 | BR | ALT-C |
| 23 | P | DTRL_RLY |
| 24 | O | HOOD_SW |
| 25 | LG | SUB_ECU |
| 30 | BR | PUSH_START_SW |
| 31 | BR | NP_SW [With VK engine] |
| 31 | W | NP_SW [With VQ engine] |
| 36 | GR | F/L_IGN_SW |

| Connector No. | E6 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Type | TH40FW-NH |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 39 | P | CAN-L |
| 40 | L | CAN-H |
| 41 | B | S-GND |
| 42 | V | MOTOR_FAN_RLY_CONT [With VK engine] |
| 42 | Y | MOTOR_FAN_RLY_CONT [With VQ engine] |
| 43 | SB | DETENT_SW |
| 44 | GR | HORN_RLY [With VK engine] |
| 44 | LG | HORN_RLY [With VQ engine] |
| 45 | G | HORN_SW |
| 46 | BR | START_CONT |

| Connector No. | E26 |
|---|---|
| Connector Name | HEADLAMP AIMING MOTOR RH |
| Connector Type | HS03FGY |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | AIMER_VCC |
| 2 | B | AIMER_GND |
| 3 | SB | AIMER_SIG |

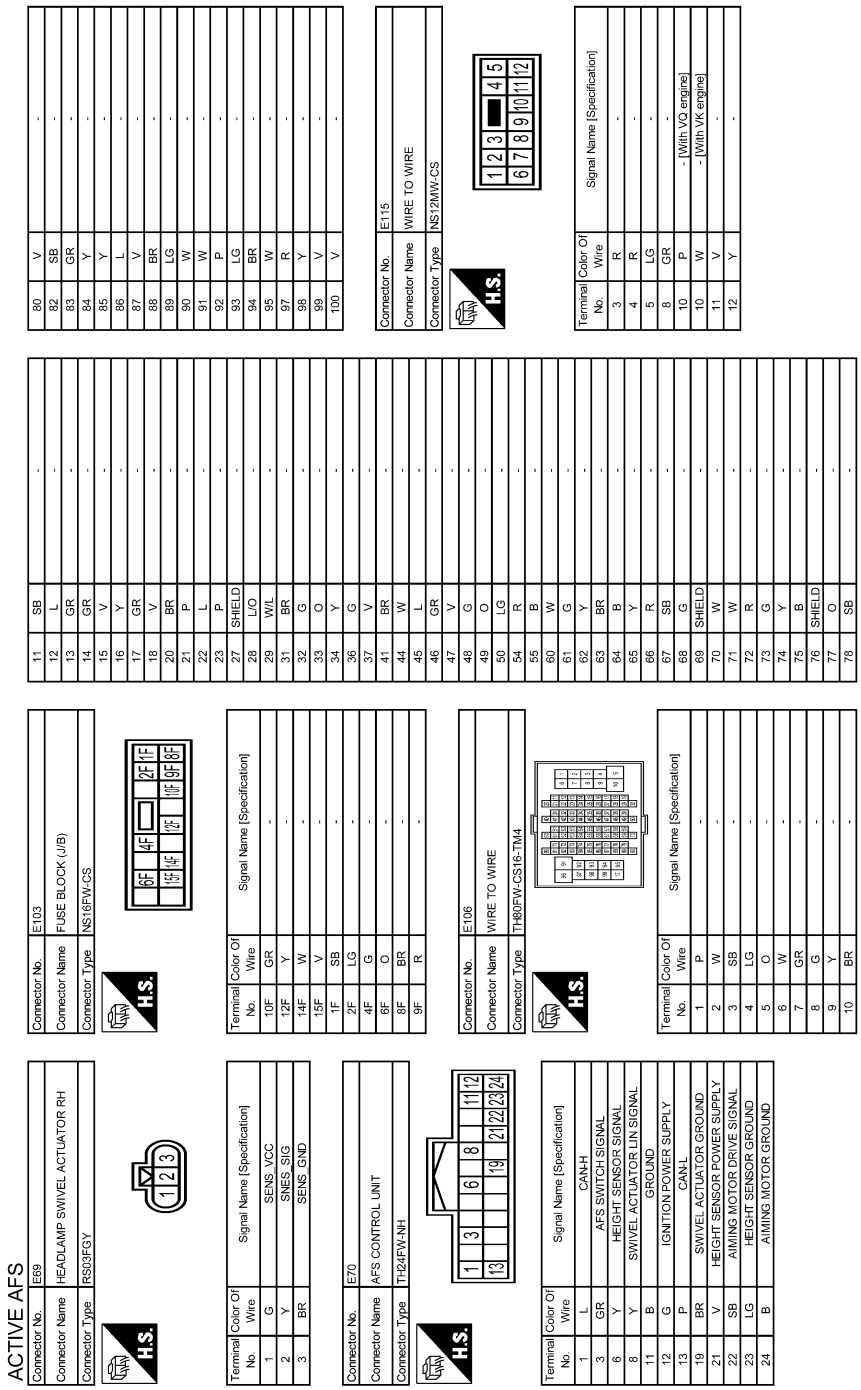
| Connector No. | E56 |
|---|---|
| Connector Name | HEADLAMP AIMING MOTOR LH |
| Connector Type | HS03FGY |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | AIMER_VCC |
| 2 | B | AIMER_GND |
| 3 | SB | AIMER_SIG |

| Connector No. | E68 |
|---|---|
| Connector Name | HEADLAMP SWIVEL ACTUATOR LH |
| Connector Type | RS03FGY |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | SENS_VCC |
| 2 | Y | SENS_SIG |
| 3 | BR | SENS_GND |

JRLWE0513GB

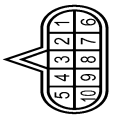



JRLWE0514GB

ACTIVE AFS

| Connector No. | F61 |
|---|---|
| Connector Name | A/T ASSEMBLY |
| Connector Type | RK10FG-DGY |

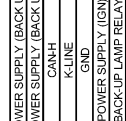
H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | Y | POWER SUPPLY (BACK UP) |
| 2 | R | POWER SUPPLY (BACK UP) |
| 3 | L | CAN-H |
| 4 | V | K-LINE |
| 5 | B | GND |
| 6 | G | POWER SUPPLY (IGN) |
| 7 | SB | BACK-UP LAMP RELAY |
| 8 | P | CAN-L |
| 9 | BR | P/N SIGNAL |
| 10 | B | GROUND |

| Connector No. | F301 |
|---|---|
| Connector Name | TCM |
| Connector Type | SP10FG |

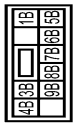
H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | - | - |
| 2 | - | VIGN |
| 3 | - | BATT |
| 4 | - | CAN-H |
| 5 | - | K LINE |
| 6 | - | GND |
| 7 | - | VIGN |
| 8 | - | REV LAMP RLY |
| 9 | - | CAN-L |
| 10 | - | START RLY |
| - | - | GND |

| Connector No. | M2 |
|---|---|
| Connector Name | FUSE BLOCK (J/B) |
| Connector Type | NS10FW-CS |

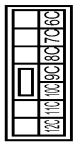
H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1B | R | - |
| 3B | P | - |
| 4B | G | - |
| 5B | SB | - |
| 6B | W | - [With VQ engine] |
| 6B | Y | - [With VK engine] |
| 7B | Y | - |
| 8B | R | - |
| 9B | R | - |

| Connector No. | M3 |
|---|---|
| Connector Name | FUSE BLOCK (J/B) |
| Connector Type | NS12FW-CS |

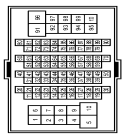
H.S.




| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 10C | LG | - |
| 11C | LG | - |
| 12C | O | - |
| 6C | R | - |
| 7C | B | - |
| 8C | B | - |
| 9C | L | - |

| Connector No. | M6 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-CS16-TM4 |

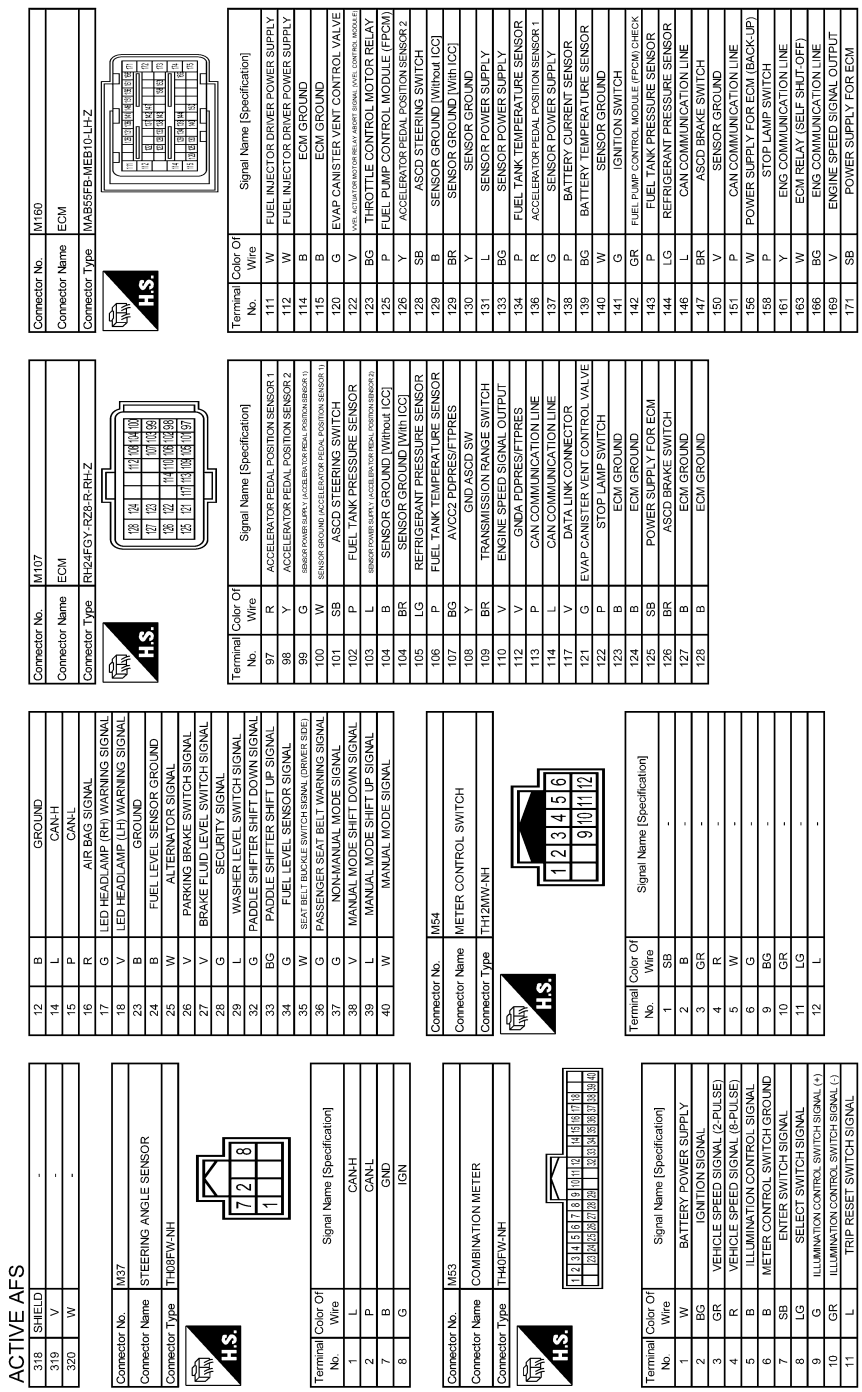
H.S.



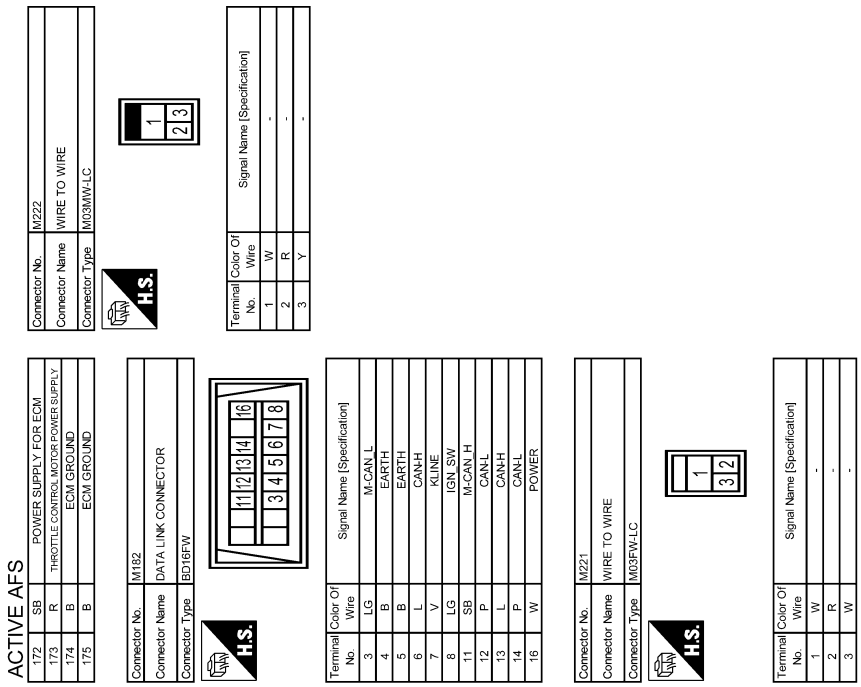
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | - |
| 2 | W | - |
| 3 | SB | - |
| 4 | LG | - |
| 5 | W | - |
| 6 | W | - |
| 7 | BG | - |
| 8 | G | - |
| 9 | Y | - |
| 10 | W | - |
| 11 | R | - |
| 12 | V | - |
| 13 | LG | - |
| 14 | L | - |
| 15 | V | - |
| 16 | B | - |
| 17 | GR | - |
| 18 | V | - |
| 20 | SB | - |
| 21 | BR | - |
| 22 | L | - |
| 23 | P | - |
| 27 | SHIELD | - |
| 28 | V | - |
| 29 | SB | - |
| 31 | BG | - |
| 32 | P | - |
| 33 | R | - |
| 34 | BG | - |
| 36 | V | - |
| 37 | G | - |
| 41 | BR | - |
| 44 | BR | - |
| 45 | Y | - |
| 46 | BG | - |
| 47 | V | - |
| 48 | G | - |
| 49 | BG | - |
| 50 | W | - |
| 54 | W | - |
| 55 | G | - |
| 60 | GR | - |
| 61 | B | - |
| 62 | LG | - |
| 63 | BR | - |
| 64 | L | - [With ICC] |
| 64 | SB | - [Without ICC] |
| 65 | R | - [With ICC] |
| 65 | Y | - [Without ICC] |
| 66 | P | - |
| 67 | L | - |
| 68 | R | - |
| 69 | SHIELD | - |
| 70 | B | - |
| 71 | W | - |
| 72 | R | - |
| 73 | G | - |
| 74 | Y | - |
| 75 | B | - |
| 76 | SHIELD | - |
| 77 | B | - |
| 78 | V | - |
| 80 | G | - |
| 82 | B | - |
| 83 | BG | - |
| 84 | SB | - |
| 85 | Y | - |
| 86 | L | - |
| 87 | V | - |
| 88 | V | - |
| 89 | LG | - |
| 90 | BG | - |
| 91 | W | - |
| 92 | BG | - |
| 93 | G | - |
| 94 | Y | - |
| 95 | W | - |
| 97 | SB | - |
| 98 | R | - |
| 99 | W | - |
| 100 | L | - |

JRLWE0515GB

JRLWE0516GB




JRLWE0517GB




JRLWE0518GB

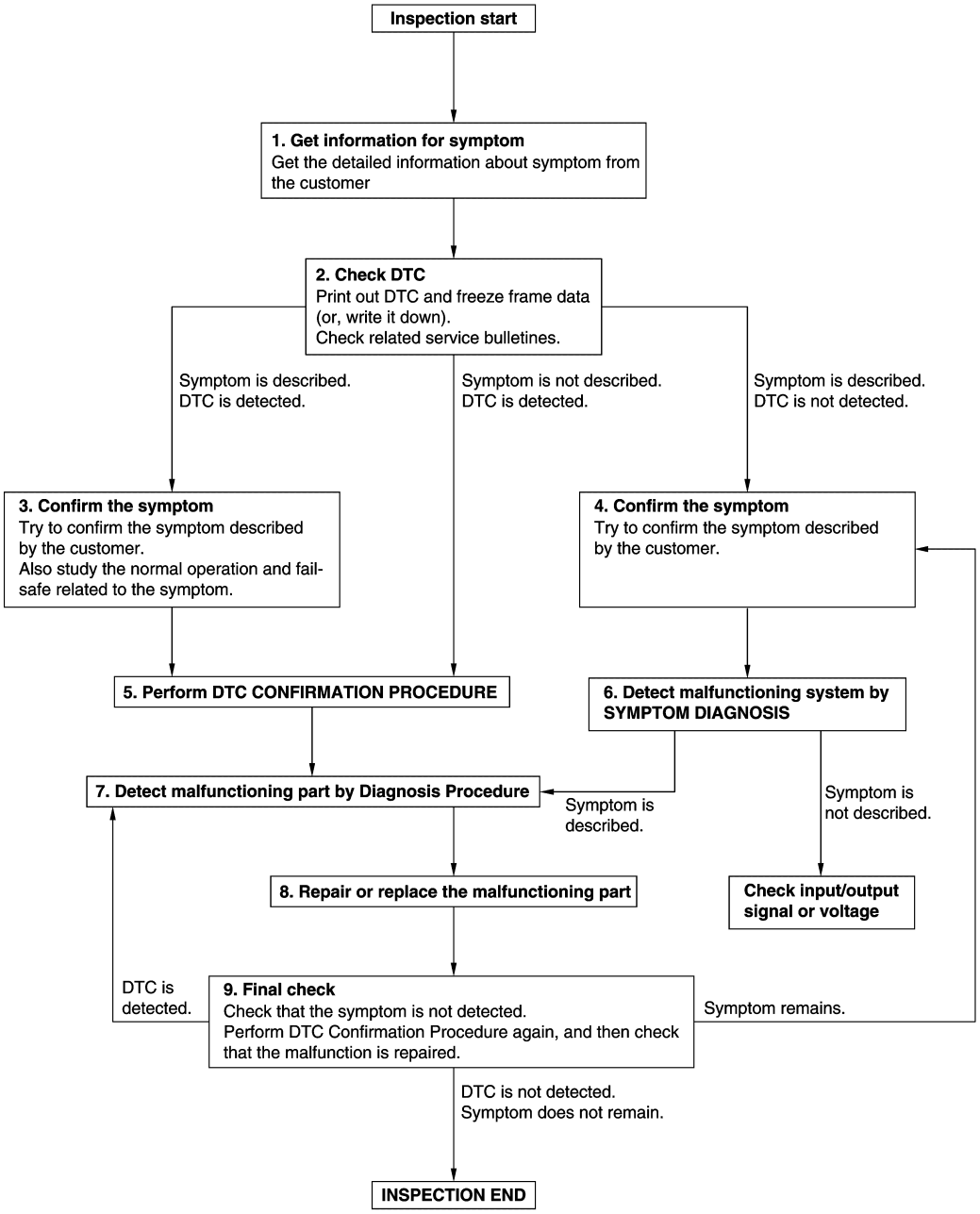
# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORK FLOW

### Work Flow

INFOID:0000000011460203

#### OVERALL SEQUENCE




JMKIA8652GB

#### DETAILED FLOW

## 1.GET INFORMATION FOR SYMPTOM

1. Get detailed information from the customer about the symptom (the condition and the environment when the incident/malfunction occurs).
2. Check operation condition of the function that is malfunctioning.

>> GO TO 2.

## 2.CHECK DTC

1. Check DTC.
2. Perform the following procedure if DTC is detected.

- Record DTC and freeze frame data (Print them out using CONSULT.)
- Erase DTC.
- Study the relationship between the cause detected by DTC and the symptom described by the customer.

3. Check related service bulletins for information.

Are any symptoms described and any DTC detected?

Symptom is described, DTC is detected>>GO TO 3.
Symptom is described, DTC is not detected>>GO TO 4.
Symptom is not described, DTC is detected>>GO TO 5.

## 3.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.
Also study the normal operation and fail-safe related to the symptom.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 5.

## 4.CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer.
Verify relation between the symptom and the condition when the symptom is detected.

>> GO TO 6.

## 5.PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time.
If two or more DTCs are detected, refer to DTC INSPECTION PRIORITY CHART, and determine trouble diagnosis order.

**NOTE:**

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.
  If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIRMATION PROCEDURE.

Is DTC detected?

YES >> GO TO 7.
NO >> Check according to GI-44, "Intermittent Incident".

## 6.DETECT MALFUNCTIONING SYSTEM BY SYMPTOM DIAGNOSIS

Detect malfunctioning system according to SYMPTOM DIAGNOSIS based on the confirmed symptom in step 4, and determine the trouble diagnosis order based on possible causes and symptom.

Is the symptom described?

YES >> GO TO 7.
NO >> Monitor input data from related sensors or check voltage of related module terminals using CONSULT.

## 7.DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

Inspect according to Diagnosis Procedure of the system.

Is malfunctioning part detected?

YES >> GO TO 8.
NO >> Check according to GI-44, "Intermittent Incident".

## 8. REPAIR OR REPLACE THE MALFUNCTIONING PART

1. Repair or replace the malfunctioning part.
2. Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.
3. Check DTC. If DTC is detected, erase it.

>> GO TO 9.

## 9. FINAL CHECK

When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.
When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the symptom is not detected.

Is DTC detected and does symptom remain?

YES-1 >> DTC is detected: GO TO 7.
YES-2 >> Symptom remains: GO TO 4.
NO >> Before returning the vehicle to the customer, always erase DTC.

# LED HEADLAMP OPERATION INSPECTION

## Work Procedure

INFOID:0000000011460204

### 1.CHECK START

1. In the cool LED status (wait for more than 10 minutes after turning headlamp OFF), turn ON and turn OFF headlamp for the several times. Check that headlamp operates normally each time.
2. In the cool LED status, turn headlamp ON, wait until headlamp enters to the stable status (approximately 5 minutes after turning headlamp ON), and then check that headlamp operates normally without blinking or flickering.
3. In the warm LED status (turn headlamp ON for more than 15 minutes and wait for 1 minute after turning OFF), turn ON and turn OFF headlamp for the several times. Check that headlamp operates normally each time.
4. Turn headlamp ON for approximately 30 minutes, and then check that headlamp operates normally without difference in brightness between LH and RH, blinking or flickering.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Refer to EXL-125, "Symptom Table".

# ADDITIONAL SERVICE WHEN REPLACING AFS CONTROL UNIT

## Description

INFOID:0000000011460207

### BEFORE REPLACEMENT

When replacing AFS control unit, save or print current vehicle specification with CONSULT “Configuration” before replacement.

**NOTE:**

If “READ CONFIGURATION” can not be used, use the “WRITE CONFIGURATION - Manual selection” after replacing AFS control unit.

### AFTER REPLACEMENT

**CAUTION:**

- **When replacing AFS control unit, always perform “WRITE CONFIGURATION” with CONSULT. Or not doing so, AFS control unit control function does not operate normally.**
- **Complete the procedure of “WRITE CONFIGURATION” in order.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**
- **If you set incorrect “WRITE CONFIGURATION”, incidents might occur.**
- **Perform “SENSOR INITIALIZE” with CONSULT when replacing the AFS control unit.**

## Work Procedure

INFOID:0000000011460208

### 1. SAVING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “READ CONFIGURATION” to save or print current vehicle specification. Refer to EXL-76, "Description".

**NOTE:**

If “READ CONFIGURATION” can not be used, use the “WRITE CONFIGURATION - Manual selection” after replacing AFS control unit.

>> GO TO 2.

### 2. REPLACE AFS CONTROL UNIT

Replace AFS control unit. Refer to EXL-148, "Removal and Installation".

>> GO TO 3.

### 3. WRITING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “WRITE CONFIGURATION - Config file” or “WRITE CONFIGURATION - Manual selection” to write vehicle specification. Refer to EXL-76, "Work Procedure".

>> GO TO 4.

### 4. SENSOR INITIALIZE

CONSULT Work Support

Perform “SENSOR INITIALIZE”. Refer to EXL-78, "Work Procedure".

>> WORK END

# CONFIGURATION (AFS CONTROL UNIT)

## Description

INFOID:0000000011460213

Vehicle specification needs to be written with CONSULT because it is not written after replacing AFS control unit.
Configuration has three functions as follows.

| Function | Description |
|---|---|
| READ CONFIGURATION | • Reads the vehicle configuration of current AFS control unit.<br>• Saves the read vehicle configuration. |
| WRITE CONFIGURATION - Manual selection | Writes the vehicle configuration with manual selection. |
| WRITE CONFIGURATION - Config file | Writes the vehicle configuration with saved data. |

**CAUTION:**
- **When replacing AFS control unit, always perform “WRITE CONFIGURATION” with CONSULT. Or not doing so, AFS control unit control function does not operate normally.**
- **Complete the procedure of “WRITE CONFIGURATION” in order.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**
- **If you set incorrect “WRITE CONFIGURATION”, incidents might occur.**

## Work Procedure

INFOID:0000000011460214

### 1.WRITING MODE SELECTION

CONSULT Configuration
1. Turn ignition switch ON.
2. Select “Configuration” mode of “ADAPTIVE LIGHT” using CONSULT.

When writing saved data>>GO TO 2.
When writing manually>>GO TO 3.

### 2.PERFORM “WRITE CONFIGURATION - CONFIG FILE”

CONSULT Configuration
Perform “WRITE CONFIGURATION - Config file”.

>> WORK END

### 3.PERFORM “WRITE CONFIGURATION - MANUAL SELECTION”

CONSULT Configuration
1. Select "WRITE CONFIGURATION - Manual selection".
2. Identify the correct model and configuration list. Refer to EXL-77, "Configuration list".
3. Confirm and/or change setting value for each item.
   **CAUTION:**
   **Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.**
   **NOTE:**
   If items are not displayed, touch “SETTING”. Refer to EXL-77, "Configuration list" for written items and setting value.
4. Select "SETTING".
   **CAUTION:**
   **Make sure to select “SETTING” even if the indicated configuration of brand new AFS control unit is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model can not be memorized.**
5. When "COMMAND FINISHED", touch "End".

>> WORK END

## Configuration list

INFOID:0000000011460215

**CAUTION:**

**Thoroughly read and understand the vehicle specification. ECU control may not operate normally if the setting is not correct.**

| SETTING ITEM | | NOTE |
|---|---|---|
| Items | Setting value | |
| ENGINE TYPE | TYPE 2 | — |
| HANDLE | LHD | — |
| SUSPENSION | TYPE 1 | — |

# SENSOR INITIALIZE

## Description

INFOID:0000000011460219

Perform the sensor initialize when the following operation is performed.
- Replacing AFS control unit
- Removing, installing or replacing height sensor
- Adjusting, removing, installing or replacing suspension components

## Work Procedure

INFOID:0000000011460220

### 1.VEHICLE CONDITION CHECK

1. Park the vehicle in the straight-forward position.
2. Unload the vehicle (no passenger aboard).

>> GO TO 2.

### 2.SENSOR INITIALIZE

With CONSULT
1. Turn ignition switch ON.
2. Select “LEVELIZER ADJUSTMENT” in “Work Support” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Touch "Start".
4. When "INITIALISE COMPLETE", touch "End".
   **NOTE:**
   If "INITIALISE NOT DONE" is indicated, AFS control unit detects that the height sensor signal changes. The sensor initialize is cancelled. In this case, turn the ignition switch OFF to prevent the vehicle from the height change. Perform the sensor initialize again.

Is the sensor initialize completed?

YES >> GO TO 3.
NO >> Perform the sensor initialize again.

### 3.SELF DIAGNOSTIC RESULT CHECK

With CONSULT
1. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
2. Check DTC.

Is DTC detected?

YES >> GO TO 2.
NO >> WORK END

# DTC/CIRCUIT DIAGNOSIS

## B2008 PARA NOT PROG

### DTC Description

INFOID:0000000011460223

#### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| B2008 | PARA NOT PROG (Parameter not programmed) | Vehicle specification is not written in AFS control unit when the ignition switch is turned ON |

#### POSSIBLE CAUSE

Configuration is not completed

#### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motors stop at the position when DTC is detected | Right and left headlamp aiming motors stop at the position when DTC is detected |

#### DTC CONFIRMATION PROCEDURE

**1.** PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-79, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

### Diagnosis Procedure

INFOID:0000000011460224

**1.** PERFORM CONFIGURATION

Perform configuration. Refer to EXL-76, "Work Procedure".

>> INSPECTION END

# B2503 SWIVEL ACTUATOR [RH]

## DTC Description

INFOID:0000000011460261

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| B2503 | SWIVEL ACTUATOR [RH] (Swivel actuator [Right hand]) | • Power supply voltage supplied to the swivel actuator RH is 17.5 V or more or 7.7 V or less and this condition continues for 5 seconds or more when the ignition switch is turned ON<br>• Initialization incomplete status of the swivel actuator (RH) continues for 5 seconds or more when the swivel actuator is initialized<br>• Swivel actuator (RH) does not complete swivel actuator initialization when the vehicle is driven |
| | SWIVEL ACTUATOR [RH] COMM ERROR (Swivel actuator [Right hand] Communication error) | LIN communication signal malfunction status between AFS control unit and the swivel actuator (RH) continues for 5 seconds or more when the ignition switch is turned ON |

### POSSIBLE CAUSE

- Harness or connectors
- Swivel actuator RH

### FAIL-SAFE

| CONSULT screen terms | Fail-safe | |
|---|---|---|
| | Swivel operation | Aiming operation |
| SWIVEL ACTUATOR [RH] | • Right swivel motor stop at the position when DTC is detected<br>• Left swivel motor swivel angle returns to 0° and fixed | The signal, approximately 2 V decreased from the aiming motor drive signal when DTC detected, is output |
| SWIVEL ACTUATOR [RH] COMM ERROR | • Right swivel motor stop at the position when DTC is detected or right swivel motor swivel angle returns to 0° and fixed<br>• Left swivel motor swivel angle returns to 0° and fixed | |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start engine and wait at least 5 seconds.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-80, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460262

#### 1.CHECK DTC

Perform each inspection according to the displayed DTC.

Which DTC is displayed?

SWIVEL ACTUATOR [RH] >>GO TO 2.
SWIVEL ACTUATOR [RH] COMM ERROR >>GO TO 4.

#### 2.CHECK SWIVEL ACTUATOR RH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect headlamp swivel actuator RH connector.
3. Turn ignition switch ON.
4. Check voltage between headlamp swivel actuator RH harness connector and ground.

| + | | - | Voltage |
|---|---|---|---|
| Headlamp swivel actuator RH | | | |
| Connector | Terminal | | |
| E69 | 1 | Ground | Battery voltage |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

## 3. CHECK SWIVEL ACTUATOR RH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between headlamp swivel actuator RH harness connector and AFS control unit harness connector.

| Headlamp swivel actuator RH | | AFS control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E69 | 3 | E70 | 19 | Existed |

Is the inspection result normal?

YES >> Replace front combination lamp RH. Refer to EXL-137, "Removal and Installation".
NO >> Repair or replace harness.

## 4. CHECK SWIVEL ACTUATOR RH LIN COMMUNICATION SIGNAL CIRCUIT (OPEN)

1. Turn ignition switch OFF.
2. Disconnect headlamp swivel actuator RH connector and AFS control unit connector.
3. Check continuity between headlamp swivel actuator RH harness connector and AFS control unit harness connector.

| Headlamp swivel actuator RH | | AFS control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E69 | 2 | E70 | 8 | Existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace harness.

## 5. CHECK SWIVEL ACTUATOR RH LIN COMMUNICATION SIGNAL CIRCUIT (SHORT)

Check continuity between headlamp swivel actuator RH harness connector and ground.

| Headlamp swivel actuator RH | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E69 | 2 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace front combination lamp RH. Refer to EXL-137, "Removal and Installation".
NO >> Repair or replace harness.

# B2504 SWIVEL ACTUATOR [LH]

## DTC Description

INFOID:0000000011460263

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| B2504 | SWIVEL ACTUATOR [LH] (Swivel actuator [Left hand]) | • Power supply voltage supplied to the swivel actuator LH is 17.5 V or more or 7.7 V or less and this condition continues for 5 seconds or more when the ignition switch is turned ON<br>• Initialization incomplete status of the swivel actuator (LH) continues for 5 seconds or more when the swivel actuator is initialized<br>• Swivel actuator (LH) does not complete swivel actuator initialization when the vehicle is driven |
| | SWIVEL ACTUATOR [LH] COMM ERROR (Swivel actuator [Left hand] Communication error) | LIN communication signal malfunction status between AFS control unit and the swivel actuator (LH) continues for 5 seconds or more when the ignition switch is turned ON |

### POSSIBLE CAUSE

- Harness or connectors
- Swivel actuator LH

### FAIL-SAFE

| CONSULT screen terms | Fail-safe | |
|---|---|---|
| | Swivel operation | Aiming operation |
| SWIVEL ACTUATOR [LH] | • Left swivel motor stop at the position when DTC is detected<br>• Right swivel motor swivel angle returns to 0° and fixed | The signal, approximately 2 V decreased from the aiming motor drive signal when DTC detected, is output |
| SWIVEL ACTUATOR [LH] COMM ERROR | • Left swivel motor stop at the position when DTC is detected or left swivel motor swivel angle returns to 0° and fixed<br>• Right swivel motor swivel angle returns to 0° and fixed | |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Start engine and wait at least 5 seconds.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-82, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460264

#### 1.CHECK DTC

Perform each inspection according to the displayed DTC.

Which DTC is displayed?

SWIVEL ACTUATOR [LH] >>GO TO 2.
SWIVEL ACTUATOR [LH] COMM ERROR >>GO TO 4.

#### 2.CHECK SWIVEL ACTUATOR LH POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect headlamp swivel actuator LH connector.
3. Turn ignition switch ON.
4. Check voltage between headlamp swivel actuator LH harness connector and ground.

| + | | - | Voltage |
|---|---|---|---|
| Headlamp swivel actuator LH | | | |
| Connector | Terminal | | |
| E68 | 1 | Ground | Battery voltage |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

## 3. CHECK SWIVEL ACTUATOR LH GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between headlamp swivel actuator LH harness connector and AFS control unit harness connector.

| Headlamp swivel actuator LH | | AFS control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E68 | 3 | E70 | 19 | Existed |

Is the inspection result normal?

YES >> Replace front combination lamp LH. Refer to EXL-137, "Removal and Installation".
NO >> Repair or replace harness.

## 4. CHECK SWIVEL ACTUATOR LH LIN COMMUNICATION SIGNAL CIRCUIT (OPEN)

1. Turn ignition switch OFF.
2. Disconnect headlamp swivel actuator LH connector and AFS control unit connector.
3. Check continuity between headlamp swivel actuator LH harness connector and AFS control unit harness connector.

| Headlamp swivel actuator LH | | AFS control unit | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E68 | 2 | E70 | 8 | Existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace harness.

## 5. CHECK SWIVEL ACTUATOR LH LIN COMMUNICATION SIGNAL CIRCUIT (SHORT)

Check continuity between headlamp swivel actuator LH harness connector and ground.

| Headlamp swivel actuator LH | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E68 | 2 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace front combination lamp LH. Refer to EXL-137, "Removal and Installation".
NO >> Repair or replace harness.

# B2514 HEIGHT SENSOR UNUSUAL [RR]

## DTC Description

INFOID:0000000011460267

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| B2514 | HI SEN UNUSUAL [RR] (Height sensor unusual [Rear]) | • Power supply voltage supplied to the height sensor is 6.25 V or more or 4.45 V or less and this condition continues for 10 seconds or more when the ignition switch is turned ON<br>• Signal voltage from the height sensor is 4.0 V or more or 1.0 V or less and this condition continues for 10 seconds or more when the ignition switch is turned ON |

### POSSIBLE CAUSE

- Harness or connectors
- Height sensor installation condition
- Height sensor
- AFS control unit

### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON and wait at least 10 seconds.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-84, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460268

#### 1.CHECK INSTALLATION OF HEIGHT SENSOR

Check height sensor is properly installed. Refer to EXL-150, "Exploded View".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace malfunctioning parts and perform sensor initialize. Refer to EXL-78, "Work Procedure".

#### 2.CHECK HEIGHT SENSOR SIGNAL

1. Turn ignition switch ON.
2. Check voltage between AFS control unit harness connector and ground.

| + | | - | Voltage |
|---|---|---|---|
| AFS control unit | | | |
| Connector | Terminal | | |
| E70 | 6 | Ground | 1.0 – 4.0 V |

Is the measurement value within the standard value?

YES >> Replace AFS control unit. Refer to EXL-148, "Removal and Installation".
NO-1 >> Less than the standard value: GO TO 3.
NO-2 >> Higher than the standard value: GO TO 8.

## 3.CHECK HEIGHT SENSOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect height sensor connector.
3. Turn ignition switch ON.
4. Check voltage between height sensor harness connector and ground.

| + | | - | Voltage |
|---|---|---|---|
| Height sensor | | | |
| Connector | Terminal | | |
| B32 | 2 | Ground | 4.45 – 6.25 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 6.

## 4.CHECK HEIGHT SENSOR SIGNAL CIRCUIT (OPEN)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector and height sensor harness connector.

| AFS control unit | | Height sensor | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E70 | 6 | B32 | 1 | Existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace harness.

## 5.CHECK HEIGHT SENSOR SIGNAL CIRCUIT (SHORT)

Check continuity between AFS control unit harness connector and ground.

| AFS control unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E70 | 6 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace height sensor. Refer to EXL-150, "Removal and Installation".
NO >> Repair or replace harness.

## 6.CHECK HEIGHT SENSOR POWER SUPPLY CIRCUIT (OPEN)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector.
3. Check continuity between AFS control unit harness connector and height sensor harness connector.

| AFS control unit | | Height sensor | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E70 | 21 | B32 | 2 | Existed |

Is the inspection result normal?

YES >> GO TO 7.
NO >> Repair or replace harness.

## 7.CHECK HEIGHT SENSOR POWER SUPPLY CIRCUIT (SHORT)

Check continuity between AFS control unit harness connector and ground.

| AFS control unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E70 | 21 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace AFS control unit. Refer to EXL-148, "Removal and Installation"
NO >> Repair or replace harness.

## 8.CHECK HEIGHT SENSOR GROUND

Check voltage between AFS control unit harness connector and ground.

| + | | - | Voltage (Approx.) |
|---|---|---|---|
| AFS control unit | | | |
| Connector | Terminal | | |
| E70 | 23 | Ground | 0 V |

Is the inspection result normal?

YES >> GO TO 9.
NO >> Replace AFS control unit. Refer to EXL-148, "Removal and Installation"

## 9.CHECK HEIGHT SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and height sensor connector.
3. Check continuity between AFS control unit harness connector and height sensor harness connector.

| AFS control unit | | Height sensor | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E70 | 23 | B32 | 4 | Existed |

Is the inspection result normal?

YES >> Replace height sensor. Refer to EXL-150, "Removal and Installation".
NO >> Repair or replace harness.

# B2516 SHIFT POSITION SIGNAL [R, P]

## DTC Description

INFOID:0000000011460269

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| B2516 | SHIFT POS SIG[R,P] (Shift position signal) | Malfunction status of the shift position signal received from TCM continues for 2 seconds or more when the ignition switch is turned ON |

### POSSIBLE CAUSE

A/T control system

### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motor swivel angle returns to 0° and fixed | — |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON and wait at least 2 seconds.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-87, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460270

#### 1.TCM SELF-DIAGNOSIS

With CONSULT

1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “TRANSMISSION” using CONSULT, and repair or replace malfunctioning parts.
3. Check DTC, and repair or replace malfunctioning parts. Refer to TM-78, "DTC Index".

>> INSPECTION END

# B2517 VEHICLE SPEED SIGNAL

## DTC Description

INFOID:0000000011460273

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| B2517 | VEHICEL SPEED SIG (Speed signal) | Malfunction status of the vehicle speed signal received from the combination meter continues for 2 seconds or more when the ignition switch is turned ON |

### POSSIBLE CAUSE

Vehicle speed signal

### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON and wait at least 2 seconds.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-88, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460274

#### 1.COMBINATION METER SELF-DIAGNOSIS

With CONSULT
1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “METER/M&A” using CONSULT, and repair or replace malfunctioning parts.
3. Check DTC, and repair or replace malfunctioning parts. Refer to MWI-45, "DTC Index".

>> INSPECTION END

# B2519 LEVELIZER CALIBRATION

## DTC Description

INFOID:0000000011460275

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| B2519 | LEVELIZER CALIB (Levelizer calibration) | Initialization incomplete status of the height sensor is detected when the ignition switch is turned ON |

### POSSIBLE CAUSE

Sensor initialize is not completed

### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors fix at the initial aiming position |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-89, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460276

#### 1.SENSOR INITIALIZE

Perform sensor initialize. Refer to EXL-78, "Work Procedure".

>> INSPECTION END

# B2521 ECU CIRCUIT

## DTC Description

INFOID:0000000011460277

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| B2521 | ECU CIRC (ECU) | Internal malfunction of AFS control unit continues for 10 seconds or more when the ignition switch is turned ON |

### POSSIBLE CAUSE

AFS C/U

### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON and wait at least 10 seconds.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-90, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460278

#### 1.REPLACE AFS CONTROL UNIT

Replace AFS control unit. Refer to EXL-148, "Removal and Installation".

>> INSPECTION END

# U0126 STEERING ANGLE SENSOR SIGNAL

## DTC Description

INFOID:0000000011460279

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| U0126 | ST ANG SEN SIG [Lost communication with steering angle sensor module] | • Malfunction status of the steering angle signal received from the steering angle sensor continues for 2 seconds or more when the ignition switch is turned ON<br>• Steering angle sensor malfunction signal is received from the steering angle sensor for 2 seconds or more continuously when the ignition switch is turned ON |

### POSSIBLE CAUSE

Steering angle sensor

### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motor swivel angle returns to 0° and fixed | — |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON and wait at least 2 seconds.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-91, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460280

#### 1.ABS ACTUATOR AND ELECTRICAL UNIT (CONTROL UNIT) SELF-DIAGNOSIS

With CONSULT
1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “ABS” using CONSULT, and repair or replace malfunctioning parts.
3. Check DTC, and repair or replace malfunctioning parts. Refer to BRC-50, "DTC Index".

>> INSPECTION END

# U0428 STEERING ANGLE SENSOR CALIBRATION

## DTC Description

INFOID:0000000011460281

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| U0428 | ST ANG SEN CALIB [Invalid data received from steering angle sensor module] | Steering calibration signal (incomplete status) is received from the steering angle sensor for 2 seconds or more continuously when the ignition switch is turned ON |

### POSSIBLE CAUSE

Adjustment of steering angle sensor neutral position is not completed

### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motor swivel angle returns to 0° and fixed | — |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON and wait at least 2 seconds.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-92, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460282

#### 1.ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION

Perform adjustment of steering angle sensor neutral position. Refer to BRC-67, "Work Procedure".
**NOTE:**
Perform adjustment of steering angle sensor neutral position on VDC side. VDC may activate incorrectly.

>> INSPECTION END

# U1000 CAN COMM CIRCUIT

## DTC Description

INFOID:0000000011460283

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| U1000 | CAN COMM CIRCUIT (CAN communication) | When AFS control unit does not transmit/receive CAN communication signal continuously for 2 seconds or more |

### POSSIBLE CAUSE

CAN communication system

### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected<br>**NOTE:**<br>Only when the vehicle speed signal or the low beam status signal cannot be received |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON and wait at least 2 seconds.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-93, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460284

#### 1.CHECK CAN COMMUNICATION SYSTEM

Perform trouble diagnosis for CAN communication system. Refer to LAN-25, "Trouble Diagnosis Flow Chart".

>> INSPECTION END

# U1010 CONTROL UNIT (CAN)

## DTC Description

INFOID:0000000011460287

### DTC DETECTION LOGIC

| DTC No. | CONSULT screen terms (Trouble diagnosis content) | DTC detection condition |
|---|---|---|
| U1010 | CONTROL UNIT(CAN) (CAN initial diagnosis abnormal) | AFS control unit detected internal CAN communication circuit malfunction |

### POSSIBLE CAUSE

AFS control unit

### FAIL-SAFE

| Fail-safe | |
|---|---|
| Swivel operation | Aiming operation |
| Right and left swivel motor swivel angle returns to 0° and fixed | Right and left headlamp aiming motors stop at the position when DTC is detected |

### DTC CONFIRMATION PROCEDURE

#### 1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON.
2. Select “Self Diagnostic Result” mode of “ADAPTIVE LIGHT” using CONSULT.
3. Check DTC.

Is DTC detected?

YES >> Refer to EXL-94, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-44, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

## Diagnosis Procedure

INFOID:0000000011460288

#### 1.REPLACE AFS CONTROL UNIT

Replace AFS control unit. Refer to EXL-148, "Removal and Installation".

>> INSPECTION END

# POWER SUPPLY AND GROUND CIRCUIT
## AFS CONTROL UNIT

### AFS CONTROL UNIT : Diagnosis Procedure

INFOID:0000000011460292

### 1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check that any of the following fuse is fusing

| Unit | Location | Fuse No. | Capacity |
|---|---|---|---|
| AFS control unit | Fuse block (J/B) | 3 | 10 A |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

### 2.CHECK AFS CONTROL UNIT POWER SUPPLY

1. Disconnect AFS control unit connector.
2. Turn ignition switch ON.
3. Check voltage between AFS control unit harness connector and ground.

| + | | - | Voltage |
|---|---|---|---|
| AFS control unit | | | |
| Connector | Terminal | | |
| E70 | 12 | Ground | 9 – 16 V |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

### 3.CHECK AFS CONTROL UNIT GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between AFS control unit harness connector and ground.

| AFS control unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E70 | 11 | Ground | Existed |

Is the inspection result normal?

YES >> Power supply and ground circuit are normal.
NO >> Repair or replace harness.

# HEADLAMP (HI) CIRCUIT

## Component Function Check

INFOID:0000000011460294

### 1.CHECK HEADLAMP (HI) OPERATION

With CONSULT
1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check that the headlamp (HI) blinks.

**Hi : Headlamp (HI) blinks (ON/OFF is repeated 1 second each.)**
**Off : Headlamp (HI) OFF**

Without CONSULT
1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the headlamp (HI) blinks.

Is the inspection result normal?

YES >> Headlamp (HI) circuit is normal.
NO >> Refer to EXL-96, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460295

### 1.CHECK HEADLAMP (HI) FUSE

1. Turn ignition switch OFF.
2. Check that the following fuses are not fusing.

| Unit | Location | Fuse No. | Capacity |
|---|---|---|---|
| Headlamp (HI) RH | IPDM E/R | #55 | 10 A |
| Headlamp (HI) LH | | #54 | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

### 2.CHECK HEADLAMP (HI) POWER SUPPLY

With CONSULT
1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check voltage between IPDM E/R harness connector and ground.

| + | | | - | Test item | | Voltage |
|---|---|---|---|---|---|---|
| IPDM E/R | | | | | | |
| Connector | | Terminal | | | | |
| RH | E8 | 89 | Ground | EXTERNAL LAMPS | Hi | 9 – 16 V (Repeated 1 second) |
| | | | | | Off | 0 – 1 V |
| LH | | 90 | | | Hi | 9 – 16 V (Repeated 1 second) |
| | | | | | Off | 0 – 1 V |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".

## 3.CHECK HEADLAMP (HI) POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front combination lamp connector.
3. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

| IPDM E/R | | | Front combination lamp | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E8 | 89 | E49 | 7 | Existed |
| LH | | 90 | E48 | | |

Is the inspection result normal?

YES >> Perform the LED headlamp diagnosis. Refer to EXL-100, "Diagnosis Procedure".
NO >> Repair or replace harness.

# HEADLAMP (LO) CIRCUIT

## Component Function Check

INFOID:0000000011460296

### 1.CHECK HEADLAMP (LO) OPERATION

With CONSULT
1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check that the headlamp (LO) is turned ON.

**Lo : Headlamp (LO) ON**
**Off : Headlamp (LO) OFF**

Without CONSULT
1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the headlamp (LO) is turned ON.

Is the inspection result normal?

YES >> Headlamp (LO) circuit is normal.
NO >> Refer to EXL-98, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460297

### 1.CHECK HEADLAMP (LO) FUSE

1. Turn ignition switch OFF.
2. Check that the following fuses are not fusing.

| Unit | Location | Fuse No. | Capacity |
|---|---|---|---|
| Headlamp (LO) RH | IPDM E/R | #57 | 15 A |
| Headlamp (LO) LH | | #56 | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

### 2.CHECK HEADLAMP (LO) POWER SUPPLY

With CONSULT
1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check voltage between IPDM E/R harness connector and ground.

| + | | | - | Test item | | Voltage |
|---|---|---|---|---|---|---|
| IPDM E/R | | | | | | |
| Connector | | Terminal | | | | |
| RH | E8 | 83 | Ground | EXTERNAL LAMPS | Lo | 9 – 16 V |
| | | | | | Off | 0 – 1 V |
| LH | | 84 | | | Lo | 9 – 16 V |
| | | | | | Off | 0 – 1 V |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".

### 3.CHECK HEADLAMP (LO) POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front combination lamp connector.
3. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

| IPDM E/R | | | Front combination lamp | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E8 | 83 | E49 | 5 | Existed |
| LH | | 84 | E48 | | |

Is the inspection result normal?

YES >> Perform the LED headlamp diagnosis. Refer to EXL-100, "Diagnosis Procedure".
NO >> Repair or replace harness.

# LED HEADLAMP

## Diagnosis Procedure

INFOID:0000000011460298

### 1.CHECK HEADLAMP GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front combination lamp connector.
3. Check continuity between front combination lamp harness connector and ground.

| Front combination lamp | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | E49 | 3 | Ground | Existed |
| LH | E48 | | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

### 2.CHECK LED HEADLAMP

Install the normal front combination lamp to the applicable headlamp. Check that the headlamp is turned ON. Refer to EXL-74, "Work Procedure".

Is the headlamp turned ON?

YES >> Replace the corresponding front combination lamp. Refer to EXL-137, "Removal and Installation".
NO >> LED headlamp is normal.

# HEADLAMP WARNING

## Component Function Check

INFOID:0000000011460299

### 1.CHECK HEADLAMP WARNING OPERATION

1. Turn ignition switch ON.
2. Check that headlamp warning on combination meter is not displayed when lighting switch is turned 2ND.

Is the inspection result normal?

YES >> Headlamp warning is normal.
NO >> Refer to EXL-101, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460300

### 1.CHECK HEADLAMP WARNING SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front combination lamp connector.
3. Turn ignition switch ON.
4. Check voltage between front combination lamp harness connector and ground.

| + | | | - | Voltage (Approx.) |
|---|---|---|---|---|
| Front combination lamp | | | | |
| Connector | | Terminal | | |
| RH | E49 | 2 | Ground | 12 V |
| LH | E48 | | | |

Is the inspection result normal?

YES >> Replace front combination lamp. Refer to EXL-137, "Removal and Installation".
NO >> GO TO 2.

### 2.CHECK HEADLAMP WARNING SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between front combination lamp harness connector and combination meter harness connector.

| Front combination lamp | | | Combination meter | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E49 | 2 | M53 | 17 | Existed |
| LH | E48 | | | 18 | |

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-94, "Removal and Installation".
NO >> Repair or replace harness.

# HEADLAMP LEVELIZER CIRCUIT

## Component Function Check

INFOID:0000000011460301

### 1.CHECK HEADLAMP LEVELIZER OPERATION

With CONSULT
1. Turn ignition switch ON.
2. Turn lighting switch 2ND.
3. Select “LEVELIZER TEST” in “Active Test” mode of “ADAPTIVE LIGHT” using CONSULT.
4. With operating the test item, check light axis operation.

| Test item | | Light axis operation |
|---|---|---|
| LEVELIZER TEST | Peak | Moves the light axis to the lowest position. |
| | Origin | Moves the light axis to the initial position. |

Is the inspection result normal?

YES >> Headlamp levelizer circuit is normal.
NO >> Refer to EXL-102, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460302

### 1.CHECK HEADLAMP AIMING MOTOR POWER SUPPLY

1. Turn ignition switch OFF.
2. Disconnect headlamp aiming motor connector.
3. Turn ignition switch ON.
4. Check voltage between headlamp aiming motor harness connector and ground.

| + | | | - | Voltage |
|---|---|---|---|---|
| Headlamp aiming motor | | | | |
| Connector | | Terminal | | |
| RH | E26 | 1 | Ground | Battery voltage |
| LH | E56 | | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harness or connector between headlamp aiming motor and fuse.

### 2.CHECK HEADLAMP AIMING MOTOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between headlamp aiming motor harness connector and ground.

| Headlamp aiming motor | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | E26 | 2 | Ground | Existed |
| LH | E56 | | | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

### 3.CHECK AIMING MOTOR DRIVE SIGNAL

With CONSULT
1. Reconnect headlamp aiming motor connector.
2. Turn ignition switch ON.
3. Turn lighting switch 2ND.
4. Select “LEVELIZER TEST” in “Active Test” mode of “ADAPTIVE LIGHT” using CONSULT.

5. With operating the test items, check voltage between AFS control unit harness connector and ground.

| + | | - | Test item | | Voltage (Approx.) |
|---|---|---|---|---|---|
| AFS control unit | | | | | |
| Connector | Terminal | | | | |
| E70 | 22 | Ground | LEVELIZER TEST | Peak | 8.75 V |
| | | | | Origin | 3.75 V |

Is the inspection result normal?

YES >> GO TO 4.
NO-1 >> Fixed at 0 V: GO TO 5.
NO-2 >> Fixed at battery voltage: GO TO 6.

## 4. CHECK AIMING MOTOR DRIVE SIGNAL CIRCUIT (OPEN)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and headlamp aiming motor connector.
3. Check continuity between AFS control unit harness connector and headlamp aiming motor harness connector.

| AFS control unit | | | Headlamp aiming motor | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E70 | 22 | E26 | 3 | Existed |
| LH | | | E56 | | |

Is the inspection result normal?

YES >> Replace front combination lamp. Refer to EXL-137, "Removal and Installation".
NO >> Repair or replace harness.

## 5. CHECK AIMING MOTOR DRIVE SIGNAL CIRCUIT (SHORT TO GROUND)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and headlamp aiming motor connector.
3. Check continuity between AFS control unit harness connector and ground.

| AFS control unit | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| E70 | 22 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace AFS control unit. Refer to EXL-148, "Removal and Installation".
NO >> Repair or replace harness.

## 6. CHECK AIMING MOTOR DRIVE SIGNAL CIRCUIT (SHORT TO BATTERY)

1. Turn ignition switch OFF.
2. Disconnect AFS control unit connector and headlamp aiming motor connector.
3. Check voltage between AFS control unit harness connector and ground.

| + | | - | Voltage (Approx.) |
|---|---|---|---|
| AFS control unit | | | |
| Connector | Terminal | | |
| E70 | 22 | Ground | 0 V |

Is the inspection result normal?

YES >> Replace AFS control unit. Refer to EXL-148, "Removal and Installation".
NO >> Repair or replace harness.

# PARKING LAMP CIRCUIT

## Component Function Check

INFOID:0000000011460305

### 1.CHECK TAIL LAMP OPERATION

Check that the tail lamp is turned ON.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Check tail lamp circuit. Refer to EXL-106, "Component Function Check".

### 2.CHECK PARKING LAMP OPERATION

With CONSULT

1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check that the parking lamp is turned ON.

**TAIL : Parking lamp ON**
**Off : Parking lamp OFF**

Without CONSULT

1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the parking lamp is turned ON.

Is the inspection result normal?

YES >> Parking lamp circuit is normal.
NO >> Refer to EXL-104, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460306

### 1.CHECK PARKING LAMP POWER SUPPLY

With CONSULT

1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check voltage between IPDM E/R harness connector and ground.

| + | | - | Test item | | Voltage |
|---|---|---|---|---|---|
| IPDM E/R | | | | | |
| Connector | Terminal | | | | |
| E9 | 94 | Ground | EXTERNAL LAMPS | TAIL | 9 – 16 V |
| | | | | Off | 0 – 1 V |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".

### 2.CHECK PARKING LAMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front combination lamp connector.
3. Check continuity between IPDM E/R harness connector and front combination lamp harness connector.

| IPDM E/R | | | Front combination lamp | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E9 | 94 | E49 | 8 | Existed |
| LH | | | E48 | | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

## 3. CHECK PARKING LAMP GROUND CIRCUIT

Check continuity between front combination lamp harness connector and ground.

| Front combination lamp | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | E49 | 4 | Ground | Existed |
| LH | E48 | | | |

Is the inspection result normal?

YES >> Replace the corresponding front combination lamp. Refer to EXL-137, "Removal and Installation".
NO >> Repair or replace harness.

# TAIL LAMP CIRCUIT

## Component Function Check

INFOID:0000000011460307

### 1.CHECK TAIL LAMP OPERATION

With CONSULT
1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check that the tail lamp is turned ON.

**TAIL : Tail lamp ON**
**Off : Tail lamp OFF**

Without CONSULT
1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the tail lamp is turned ON.

Is the inspection result normal?

YES >> Tail lamp circuit is normal.
NO >> Refer to EXL-106, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460308

### 1.CHECK FUSE

1. Turn ignition switch OFF.
2. Check that the following fuse is not fusing.

| Unit | Location | Fuse No. | Capacity |
|---|---|---|---|
| Parking lamp RH | IPDM E/R | #52 | 10 A |
| Parking lamp LH | | | |
| Front side marker lamp RH | | | |
| Front side marker lamp LH | | | |
| Tail lamp RH (Body side) | | | |
| Rear side marker lamp RH | | | |
| Tail lamp RH (Trunk lid side) | | | |
| Tail lamp LH (Trunk lid side) | | | |
| License plate lamp RH | | | |
| License plate lamp LH | | | |
| Tail lamp LH (Body side) | | #53 | |
| Rear side marker lamp LH | | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

### 2.CHECK TAIL LAMP POWER SUPPLY

With CONSULT
1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check voltage between IPDM E/R harness connector and ground.

Tail lamp (Body side)

| + | | | - | Test item | | Voltage |
|---|---|---|---|---|---|---|
| IPDM E/R | | | | | | |
| Connector | | Terminal | | | | |
| RH | E9 | 102 | Ground | EXTERNAL LAMPS | TAIL | 9 – 16 V |
| | | | | | Off | 0 – 1 V |
| LH | E7 | 55 | | | TAIL | 9 – 16 V |
| | | | | | Off | 0 – 1 V |

Tail lamp (Trunk lid side)

| + | | - | Test item | | Voltage |
|---|---|---|---|---|---|
| IPDM E/R | | | | | |
| Connector | Terminal | | | | |
| E9 | 102 | Ground | EXTERNAL LAMPS | TAIL | 9 – 16 V |
| | | | | Off | 0 – 1 V |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".

## 3. CHECK TAIL LAMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and rear combination lamp connector.
3. Check continuity between IPDM E/R harness connector and rear combination lamp harness connector.

Tail lamp (Body side)

| IPDM E/R | | | Rear combination lamp (Body side) | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E9 | 102 | B260 | 1 | Existed |
| LH | E7 | 55 | B26 | | |

Tail lamp (Trunk lid side)

| IPDM E/R | | | Rear combination lamp (Trunk lid side) | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E9 | 102 | T15 | 3 | Existed |
| LH | | | T16 | | |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

## 4. CHECK TAIL LAMP GROUND CIRCUIT

Check continuity between rear combination lamp harness connector and ground.

Tail lamp (Body side)

| Rear combination lamp (Body side) | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | B260 | 4 | Ground | Existed |
| LH | B26 | | | |

Tail lamp (Trunk lid side)

| Rear combination lamp (Trunk lid side) | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | T15 | 4 | Ground | Existed |
| LH | T16 | | | |

Is the inspection result normal?

YES >> Replace the corresponding rear combination lamp. Refer to EXL-153, "REAR COMBINATION LAMP (BODY SIDE) : Removal and Installation" (body side) or EXL-153, "REAR COMBINATION LAMP (TRUNK LID SIDE) : Removal and Installation" (trunk lid side).

NO >> Repair or replace harness.

# LICENSE PLATE LAMP CIRCUIT

## Component Function Check

INFOID:0000000011460309

### 1.CHECK TAIL LAMP OPERATION

Check that the tail lamp is turned ON.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Check tail lamp circuit. Refer to EXL-106, "Component Function Check".

### 2.CHECK LICENSE PLATE LAMP OPERATION

With CONSULT

1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check that the license plate lamp is turned ON.

**TAIL : License plate lamp ON**
**Off : License plate lamp OFF**

Without CONSULT

1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the license plate lamp is turned ON.

Is the inspection result normal?

YES >> License plate lamp circuit is normal.
NO >> Refer to EXL-109, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460310

### 1.CHECK LICENSE PLATE LAMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and license plate lamp connector.
3. Check continuity between IPDM E/R harness connector and license plate lamp harness connector.

| IPDM E/R | | | License plate lamp | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E9 | 102 | T8 | 1 | Existed |
| LH | | | T9 | | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace harness.

### 2.CHECK LICENSE PLATE LAMP GROUND CIRCUIT

Check continuity between license plate lamp harness connector and ground.

| License plate lamp | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | T8 | 2 | Ground | Existed |
| LH | T9 | | | |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

### 3.CHECK LICENSE PLATE LAMP BULB

Check the applicable license plate lamp bulb.

Is the inspection result normal?

YES >> Replace the corresponding license plate lamp. Refer to EXL-156, "Removal and Installation".
NO >> Replace the corresponding license plate lamp bulb. Refer to EXL-156, "Replacement".

# DAYTIME RUNNING LIGHT CIRCUIT

## Component Function Check

INFOID:0000000011460311

### 1.CHECK DAYTIME RUNNING LIGHT OPERATION

With CONSULT
1. Select “HEAD LAMP” of “BCM” using CONSULT.
2. Select “DAYTIME RUNNING LIGHT” in “Active Test” mode.
3. With operating the test items, check that the daytime running light is turned ON.

**On : Daytime running light ON**
**Off : Daytime running light OFF**

Is the inspection result normal?

YES >> Daytime running light circuit is normal.
NO >> Refer to EXL-111, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460312

### 1.CHECK DAYTIME RUNNING LIGHT RELAY FUSES

1. Turn ignition switch OFF.
2. Check that the following fuses are not fusing.

| Unit | Location | Fuse No. | Capacity |
|---|---|---|---|
| Daytime running light relay [Switch side (Daytime running light RH)] | IPDM E/R | #58 | 10 A |
| Daytime running light relay [Switch side (Daytime running light LH)] | | | |
| Daytime running light relay (Coil side) | Fuse block (J/B) | #11 | |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

### 2.CHECK DAYTIME RUNNING LIGHT RELAY POWER SUPPLY

1. Remove daytime running light relay.
2. Check voltage between daytime running light relay harness connector and ground.

| + | | | - | Voltage |
|---|---|---|---|---|
| Daytime running light relay | | | | |
| Connector | | Terminal | | |
| Switch side (Daytime running light RH) | E50 | 7 | Ground | Battery voltage |
| Switch side (Daytime running light LH) | | 5 | | |
| Coil side | | 2 | | |

Is the inspection result normal?

YES >> GO TO 4.
NO-1 >> Switch side: GO TO 3.
NO-2 >> Coil side: Check battery power supply circuit. Refer to PG-12, "Wiring Diagram - BATTERY POWER SUPPLY -".

### 3.CHECK DAYTIME RUNNING LIGHT RELAY (SWITCH SIDE) POWER SUPPLY CIRCUIT

1. Disconnect IPDM E/R connector.

2. Check continuity between daytime running light relay harness connector and IPDM E/R harness connector.

| Daytime running light relay | | | IPDM E/R | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| Switch side (Daytime running light RH) | E50 | 7 | E7 | 48 | Existed |
| Switch side (Daytime running light LH) | | 5 | | | |

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".
NO >> Repair or replace harness.

## 4. CHECK DAYTIME RUNNING LIGHT RELAY

Check daytime running light relay. Refer to EXL-113, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 5.
NO >> Replace daytime running light relay.

## 5. CHECK DAYTIME RUNNING LIGHT RELAY CONTROL SIGNAL

With CONSULT
1. Install daytime running light relay.
2. Turn ignition switch ON.
3. Select “HEAD LAMP” of “BCM” using CONSULT.
4. Select “DAYTIME RUNNING LIGHT” in “Active Test” mode.
5. With operating the test item, check voltage between IPDM E/R harness connector and ground.

| + | | - | Test item | | Voltage |
|---|---|---|---|---|---|
| IPDM E/R | | | | | |
| Connector | Terminal | | | | |
| E5 | 23 | Ground | DAYTIME RUNNING LIGHT | On | 0 – 1 V |
| | | | | Off | 9 – 16 V |

Is the inspection result normal?

YES >> GO TO 8.
NO-1 >> Fixed at 0 – 1 V: GO TO 7.
NO-2 >> Fixed at 9 – 16 V: GO TO 6.

## 6. CHECK DAYTIME RUNNING LIGHT REQUEST SIGNAL

With CONSULT
1. Select “DTRL REQ” in “Data Monitor” mode of “IPDM E/R” using CONSULT.
2. With operating the daytime running light ON condition, check the monitor status.

| Monitor item | Condition | | Monitor status |
|---|---|---|---|
| DTRL REQ | Daytime running light | ON condition | On |
| | | OFF condition | Off |

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".
NO >> Replace BCM. Refer to BCS-91, "Removal and Installation".

## 7. CHECK DAYTIME RUNNING LIGHT RELAY CONTROL SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Remove daytime running light relay.
3. Disconnect IPDM E/R connector.

4. Check continuity between daytime running light relay harness connector and IPDM E/R harness connector.

| Daytime running light relay | | IPDM E/R | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| E50 | 1 | E5 | 23 | Existed |

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".
NO >> Repair or replace harness.

## 8. CHECK DAYTIME RUNNING LIGHT POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Remove daytime running light relay.
3. Disconnect front combination lamp connector.
4. Check continuity between daytime running light relay harness connector and front combination lamp harness connector.

| Daytime running light relay | | | Front combination lamp | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E50 | 6 | E49 | 1 | Existed |
| LH | | 3 | E48 | | |

Is the inspection result normal?

YES >> GO TO 9.
NO >> Repair or replace harness.

## 9. CHECK DAYTIME RUNNING LIGHT GROUND CIRCUIT

Check continuity between front combination lamp harness connector and ground.

| Front combination lamp | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | E49 | 4 | Ground | Existed |
| LH | E48 | | | |

Is the inspection result normal?

YES >> Replace the corresponding front combination lamp. Refer to EXL-137, "Removal and Installation".
NO >> Repair or replace harness.

# Component Inspection

INFOID:0000000011460313

## 1. CHECK DAYTIME RUNNING LIGHT RELAY

1. Turn ignition switch OFF.
2. Remove daytime running light relay.
3. Apply battery voltage to daytime running light relay between terminals 2 and 1.
4. Check continuity of daytime running light relay terminals.

| Daytime running light relay | | Condition | | Continuity |
|---|---|---|---|---|
| Terminal | | | | |
| 7 | 6 | Battery voltage | Apply | Existed |
| | | | Not apply | Not existed |
| 5 | 3 | | Apply | Existed |
| | | | Not apply | Not existed |

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace daytime running light relay.

# FRONT FOG LAMP CIRCUIT

## Component Function Check

INFOID:0000000011460320

### 1.CHECK FRONT FOG LAMP OPERATION

With CONSULT
1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check that the front fog lamp is turned ON.

**Fog : Front fog lamp ON**
**Off : Front fog lamp OFF**

Without CONSULT
1. Start IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".
2. Check that the front fog lamp is turned ON.

Is the measurement normal?

YES >> Front fog lamp circuit is normal.
NO >> Refer to EXL-115, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460321

### 1.CHECK FRONT FOG LAMP FUSE

1. Turn ignition switch OFF.
2. Check that the following fuses are not fusing.

| Unit | Location | Fuse No. | Capacity |
|---|---|---|---|
| Front fog lamp | IPDM E/R | #59 | 15 A |

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

### 2.CHECK FRONT FOG LAMP POWER SUPPLY

With CONSULT
1. Turn ignition switch ON.
2. Select “EXTERNAL LAMPS” in “Active Test” mode of “IPDM E/R” using CONSULT.
3. With operating the test items, check the voltage between IPDM E/R harness connector and ground.

| + | | | - | Test item | | Voltage |
|---|---|---|---|---|---|---|
| IPDM E/R | | | | | | |
| Connector | | Terminal | | | | |
| RH | E8 | 86 | Ground | EXTERNAL LAMPS | Fog | 9 – 16 V |
| | | | | | Off | 0 – 1 V |
| LH | | 87 | | | Fog | 9 – 16 V |
| | | | | | Off | 0 – 1 V |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".

### 3.CHECK FRONT FOG LAMP POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector and front fog lamp connector.
3. Check continuity between IPDM E/R harness connector and front fog lamp harness connector.

| IPDM E/R | | | Front fog lamp | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | E8 | 86 | E34 | 1 | Existed |
| LH | | 87 | E64 | | |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

## 4.CHECK FRONT FOG LAMP GROUND CIRCUIT

Check continuity between front fog lamp harness connector and ground.

| Front fog lamp | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | E34 | 2 | Ground | Existed |
| LH | E64 | | | |

Is the inspection result normal?

YES >> Replace the corresponding front fog lamp. Refer to EXL-141, "Removal and Installation".
NO >> Repair or replace harness.

# TURN SIGNAL LAMP CIRCUIT

## Component Function Check

INFOID:0000000011460325

### 1.CHECK TURN SIGNAL LAMP OPERATION

With CONSULT
1. Turn ignition switch ON.
2. Select “FLASHER” of “BCM” using CONSULT.
3. Select “FLASHER” in “Active Test” mode.
4. With operating the test items, check that the turn signal lamps is turned ON.

**RH : Turn signal lamps (RH) ON**
**LH : Turn signal lamps (LH) ON**
**Off : Turn signal lamps OFF**

Is the inspection result normal?

YES >> Turn signal lamp circuit is normal.
NO >> Refer to EXL-117, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460326

### 1.CHECK TURN SIGNAL LAMP POWER SUPPLY

With CONSULT
1. Turn ignition switch OFF.
2. Disconnect the following connectors.
- Front turn signal lamp
- Door mirror
- Rear combination lamp
3. Turn ignition switch ON.
4. Select “FLASHER” of “BCM” using CONSULT.
5. Select “FLASHER” in “Active Test” mode.
6. With operating the test items, check voltage between BCM harness connector and ground.

Front turn signal lamp

| + | | | - | Test item | | Voltage |
|---|---|---|---|---|---|---|
| BCM | | | | | | |
| Connector | | Terminal | | | | |
| RH | M120 | 19 | Ground | FLASHER | RH | 9 – 16 V |
| | | | | | Off | 0 V |
| LH | | 20 | | | LH | 9 – 16 V |
| | | | | | Off | 0 V |

Side turn signal lamp / Rear turn signal lamp

| + | | | - | Test item | | Voltage |
|---|---|---|---|---|---|---|
| BCM | | | | | | |
| Connector | | Terminal | | | | |
| RH | M122 | 61 | Ground | FLASHER | RH | 9 – 16 V |
| | | | | | Off | 0 V |
| LH | | 60 | | | LH | 9 – 16 V |
| | | | | | Off | 0 V |

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

### 2.CHECK TURN SIGNAL LAMP POWER SUPPLY CIRCUIT (SHORT)

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector and ground.

Front turn signal lamp

| BCM | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | M120 | 19 | Ground | Not existed |
| LH | | 20 | | |

Side turn signal lamp / Rear turn signal lamp

| BCM | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | M122 | 61 | Ground | Not existed |
| LH | | 60 | | |

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-91, "Removal and Installation".
NO >> Repair or replace harness.

## 3.CHECK TURN SIGNAL LAMP POWER SUPPLY CIRCUIT (OPEN)

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between BCM harness connector and each turn signal lamp harness connector.

Front turn signal lamp

| BCM | | | Front turn signal lamp | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | M120 | 19 | E66 | 1 | Existed |
| LH | | 20 | E65 | | |

Side turn signal lamp

| BCM | | | Door mirror | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | M122 | 61 | D33 | 2 | Existed |
| LH | | 60 | D3 | | |

Rear turn signal lamp

| BCM | | | Rear combination lamp (Body side) | | Continuity |
|---|---|---|---|---|---|
| Connector | | Terminal | Connector | Terminal | |
| RH | M122 | 61 | B260 | 3 | Existed |
| LH | | 60 | B26 | | |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace harness.

## 4.CHECK TURN SIGNAL LAMP GROUND CIRCUIT

Check continuity between each turn signal lamp harness connector and ground.

Front turn signal lamp

| Front turn signal lamp | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | E66 | 2 | Ground | Existed |
| LH | E65 | | | |

Side turn signal lamp

| Door mirror | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | D33 | 19 | Ground | Existed |
| LH | D3 | | | |

Rear turn signal lamp

| Rear combination lamp | | | — | Continuity |
|---|---|---|---|---|
| Connector | | Terminal | | |
| RH | B260 | 4 | Ground | Existed |
| LH | B26 | | | |

Is the inspection result normal?

YES-1 >> Front turn signal lamp: Replace the corresponding front turn signal lamp. Refer to EXL-139, "Removal and Installation".

YES-2 >> Side turn signal lamp: Replace the corresponding side turn signal lamp. Refer to MIR-42, "DOOR MIRROR : Disassembly and Assembly".

YES-3 >> Rear turn signal lamp: GO TO 5.

NO >> Repair or replace harness.

## 5. CHECK REAR TURN SIGNAL LAMP BULB

Check the applicable rear turn signal lamp bulb.

Is the inspection result normal?

YES >> Check the corresponding rear turn signal lamp bulb socket and harness. Repair or replace if necessary.

NO >> Replace the corresponding rear turn signal lamp bulb.

# OPTICAL SENSOR

## Component Function Check

INFOID:0000000011460327

### 1.CHECK OPTICAL SENSOR SIGNAL

With CONSULT
1. Turn ignition switch ON.
2. Select “HEAD LAMP” of “BCM” using CONSULT.
3. Select “OPTI SEN (DTCT)” in “Data Monitor” mode.
4. Turn lighting switch AUTO.
5. With the optical sensor illuminating, check the monitor status.

| Monitor item | Condition | | Voltage (Approx.) |
|---|---|---|---|
| OPTI SEN (DTCT) | Optical sensor | When illuminating | 3.1 V or more * |
| | | When shutting off light | 0.6 V or less |

*: Illuminates the optical sensor. The value may be less than the standard value if brightness is weak.

Is the inspection result normal?

YES >> Optical sensor is normal.
NO >> Refer to EXL-120, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460328

### 1.CHECK OPTICAL SENSOR POWER SUPPLY

1. Turn ignition switch ON.
2. Turn lighting switch AUTO.
3. Check voltage between optical sensor harness connector and ground.

| + | | - | Voltage |
|---|---|---|---|
| Optical sensor | | | |
| Connector | Terminal | | |
| M94 | 1 | Ground | 4.65 – 5.5 V |

Is the inspection result normal?

YES >> GO TO 2.
NO >> GO TO 4.

### 2.CHECK OPTICAL SENSOR GROUND

Check voltage between optical sensor harness connector and ground.

| + | | - | Voltage |
|---|---|---|---|
| Optical sensor | | | |
| Connector | Terminal | | |
| M94 | 3 | Ground | 0 V |

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 6.

### 3.CHECK OPTICAL SENSOR SIGNAL

With illuminating the optical sensor, check voltage between optical sensor harness connector and ground.

| + | | - | Condition | | Voltage (Approx.) |
|---|---|---|---|---|---|
| Optical sensor | | | | | |
| Connector | Terminal | | | | |
| M94 | 2 | Ground | Optical sensor | When illuminating | 3.1 V or more* |
| | | | | When shutting off light | 0.6 V or less |

*: Illuminate the optical sensor. The value may be less than the standard if brightness is weak.

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace optical sensor. Refer to EXL-144, "Removal and Installation".

## 4. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT (OPEN)

1. Turn ignition switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

| Optical sensor | | BCM | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M94 | 1 | M120 | 17 | Existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair or replace harness.

## 5. CHECK OPTICAL SENSOR POWER SUPPLY CIRCUIT (SHORT)

Check continuity between optical sensor harness connector and ground.

| Optical sensor | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M94 | 1 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-91, "Removal and Installation".
NO >> Repair or replace harness.

## 6. CHECK OPTICAL SENSOR GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

| Optical sensor | | BCM | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M94 | 3 | M120 | 18 | Existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-91, "Removal and Installation".
NO >> Repair or replace harness.

## 7. CHECK OPTICAL SENSOR SIGNAL CIRCUIT (OPEN)

1. Turn ignition switch OFF.
2. Disconnect optical sensor connector and BCM connector.
3. Check continuity between optical sensor harness connector and BCM harness connector.

| Optical sensor | | BCM | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M94 | 2 | M120 | 14 | Existed |

Is the inspection result normal?

YES >> GO TO 8.
NO >> Repair or replace harness.

## 8. CHECK OPTICAL SENSOR SIGNAL CIRCUIT (SHORT)

Check continuity between optical sensor harness connector and ground.

| Optical sensor | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M94 | 2 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-91, "Removal and Installation".
NO >> Repair or replace harness.

# HAZARD SWITCH

## Component Function Check

INFOID:0000000011460329

### 1.CHECK HAZARD SWITCH SIGNAL

With CONSULT
1. Turn ignition switch ON.
2. Select “FLASHER” of “BCM” using CONSULT.
3. Select “HAZARD SW” in “Data Monitor” mode.
4. With operating the hazard switch, check the monitor status.

| Monitor item | Condition | | Monitor status |
|---|---|---|---|
| HAZARD SW | Hazard switch | ON | On |
| | | OFF | Off |

Is the inspection result normal?

YES >> Hazard switch circuit is normal.
NO >> Refer to EXL-123, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:0000000011460330

### 1.CHECK HAZARD SWITCH SIGNAL

1. Turn ignition switch OFF.
2. Disconnect multifunction switch connector.
3. Check voltage between multifunction switch connector and ground.

| + | | - | Voltage |
|---|---|---|---|
| Multifunction switch | | | |
| Connector | Terminal | | |
| M72 | 16 | Ground | 9 – 16 V |

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 2.

### 2.CHECK HAZARD SWITCH SIGNAL CIRCUIT (OPEN)

1. Disconnect BCM connector.
2. Check continuity between multifunction switch harness connector and BCM harness connector.

| Multifunction switch | | BCM | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| M72 | 16 | M120 | 29 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace harness.

### 3.CHECK HAZARD SWITCH SIGNAL CIRCUIT (SHORT)

Check continuity between multifunction switch harness connector and ground.

| Multifunction switch | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M72 | 16 | Ground | Not existed |

Is the inspection result normal?

YES >> Replace BCM. Refer to BCS-91, "Removal and Installation".

NO >> Repair or replace harness.

## 4. CHECK HAZARD SWITCH GROUND CIRCUIT

Check continuity between multifunction switch harness connector and ground.

| Multifunction switch | | — | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M72 | 1 | Ground | Existed |

Is the inspection result normal?

YES >> Replace multifunction switch. Refer to AV-137, "Removal and Installation" (without navigation) or AV-420, "Removal and Installation" (with navigation).

NO >> Repair or replace harness.

# SYMPTOM DIAGNOSIS

## EXTERIOR LIGHTING SYSTEM SYMPTOMS

### Symptom Table

INFOID:0000000011460331

**NOTE:**
Perform the self-diagnosis with CONSULT before the symptom diagnosis. Perform the trouble diagnosis if any DTC is detected.

| Symptom | | Possible cause | Inspection item |
|---|---|---|---|
| Headlamp (HI) is not turned ON | One side | • Fuse<br>• Headlamp (HI) power supply circuit<br>• Front combination lamp<br>- LED [Headlamp (HI)]<br>- LED headlamp control module<br>- Harness<br>• IPDM E/R | Headlamp (HI) circuit<br>Refer to EXL-96, "Component Function Check". |
| | Both sides | **Symptom diagnosis**<br>"BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON"<br>Refer to EXL-129, "Diagnosis Procedure". | |
| High beam indicator lamp is not turned ON [Headlamp (HI) is turned ON] | | Combination meter | • Combination meter<br>Data monitor "HI-BEAM IND"<br>• BCM (HEAD LAMP)<br>Active test "HEAD LAMP" |
| Headlamp (LO) is not turned ON | One side | • Fuse<br>• Headlamp (LO) power supply circuit<br>• Front combination lamp<br>- LED [Headlamp (LO)]<br>- LED headlamp control module<br>- Harness<br>• IPDM E/R | Headlamp (LO) circuit<br>Refer to EXL-98, "Component Function Check". |
| | Both sides | **Symptom diagnosis**<br>"BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON"<br>Refer to EXL-130, "Diagnosis Procedure". | |
| Headlamp (HI) and (LO) is not turned ON | | • Headlamp ground circuit<br>• Front combination lamp<br>- LED headlamp control module<br>- Harness | LED headlamp<br>Refer to EXL-100, "Diagnosis Procedure". |
| Headlamp warning remains ON [Headlamp (LO) is turned ON] | | • Headlamp warning signal circuit<br>• Front combination lamp<br>- LED headlamp control module<br>- Harness<br>• Combination meter | Headlamp warning<br>Refer to EXL-101, "Component Function Check". |
| Each lamp is not turned ON/OFF with lighting switch AUTO | | • Combination switch input/output signal circuit<br>• Combination switch<br>• BCM | Combination switch<br>Refer to BCS-89, "Symptom Table". |
| | | • Optical sensor power supply/ground/signal circuit<br>• Optical sensor<br>• BCM | Optical sensor<br>Refer to EXL-120, "Component Function Check". |
| Parking lamp is not turned ON | | • Parking lamp power supply/ground circuit<br>• Front combination lamp<br>- LED (Parking lamp)<br>- Control circuit<br>- Harness<br>• IPDM E/R | Parking lamp circuit<br>Refer to EXL-104, "Component Function Check". |

| Symptom | | Possible cause | Inspection item |
|---|---|---|---|
| Front side marker lamp is not turned ON (Parking lamp is turned ON) | | • Front combination lamp<br>- LED (Side marker lamp)<br>- Control circuit<br>- Harness | Replace front combination lamp<br>Refer to EXL-137, "Removal and Installation". |
| Rear side marker lamp is not turned ON [Tail lamp (body side) is turned ON] | | • Rear combination lamp (Body side)<br>- LED (Side marker lamp)<br>- Harness | Replace rear combination lamp (Body side)<br>Refer to EXL-153, "REAR COMBINATION LAMP (BODY SIDE) : Removal and Installation". |
| Tail lamp is not turned ON | | • Fuse<br>• Tail lamp power supply/ground circuit<br>• Rear combination lamp (Body side / Trunk lid side)<br>- LED (Tail lamp)<br>• IPDM E/R | Tail lamp circuit<br>Refer to EXL-106, "Component Function Check". |
| License plate lamp is not turned ON | | • License plate lamp power supply/ground circuit<br>• License plate lamp bulb<br>• License plate lamp | License plate lamp circuit<br>Refer to EXL-109, "Component Function Check". |
| Parking lamp, license plate lamp, side marker lamp and tail lamp are not turned ON | | **Symptom diagnosis**<br>“PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON”<br>Refer to EXL-131, "Diagnosis Procedure". | |
| Position lamp indicator lamp is not turned ON (Parking lamp, license plate lamp, side marker lamp and tail lamp are turned ON) | | Combination meter | • Combination meter<br>Data monitor “LIGHT IND”<br>• BCM (HEAD LAMP)<br>Active test “TAIL LAMP” |
| Daytime running light is not turned ON | | • Fuse<br>• Daytime running light relay power supply/control signal circuit<br>• Daytime running light relay<br>• Daytime running light power supply/ground circuit<br>• Front combination lamp<br>- LED (Daytime running light)<br>- Control circuit<br>- Harness<br>• IPDM E/R<br>• BCM<br>• ECM<br>• Combination meter | • Daytime running light circuit<br>Refer to EXL-111, "Component Function Check".<br>• BCM (HEAD LAMP)<br>Data monitor “ENGINE STATE”<br>• Combination meter<br>Data monitor “PKB SW” |
| Front fog lamp is not turned ON | One side | • Front fog lamp power supply/ground circuit<br>• Front fog lamp<br>• IPDM E/R | Front fog lamp circuit<br>Refer to EXL-115, "Component Function Check". |
| | Both sides | **Symptom diagnosis**<br>“BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON”<br>Refer to EXL-115, "Diagnosis Procedure". | |
| Front fog lamp indicator lamp is not turned ON (Front fog lamp is turned ON) | | Combination meter | • Combination meter<br>Data monitor “FR FOG IND”<br>• BCM (HEAD LAMP)<br>Active test “FR FOG LAMP” |

| Symptom | | Possible cause | Inspection item |
|---|---|---|---|
| Turn signal lamp does not blink | Indicator lamp is normal (Applicable side performs high flasher activation) | • Front turn signal lamp<br>- Front turn signal lamp power supply/ground circuit<br>- Front turn signal lamp<br>- BCM<br>• Side turn signal lamp<br>- Side turn signal lamp power supply/ground circuit<br>- Side turn signal lamp<br>- BCM<br>• Rear turn signal lamp<br>- Rear turn signal lamp power supply/ground circuit<br>- Rear turn signal lamp bulb<br>- Rear turn signal lamp bulb socket/harness<br>- BCM | Turn signal lamp circuit<br>Refer to EXL-117, "Component Function Check". |
| | Indicator lamp is included | • Combination switch input/output signal circuit<br>• Combination switch<br>• BCM | Combination switch<br>Refer to BCS-89, "Symptom Table". |
| Turn signal indicator lamp does not blink<br>(Turn signal lamp is normal) | One side | Combination meter | — |
| | Both sides<br>(Always) | • Turn indicator signal<br>• BCM<br>• Combination meter | • Combination meter<br>Data monitor “TURN IND”<br>• BCM (FLASHER)<br>Active test “FLASHER” |
| | Both sides<br>(Only when activating hazard warning lamp with ignition switch OFF) | • Combination meter power supply/ground circuit<br>• Combination meter | Combination meter<br>Power supply and ground circuit<br>Refer to MWI-74, "COMBINATION METER : Diagnosis Procedure". |
| • Hazard warning lamp does not activate (Turn signal is normal)<br>• Hazard warning lamp continues activating | | • Hazard switch signal/ground circuit<br>• Multifunction switch (Hazard switch)<br>• BCM | Hazard switch<br>Refer to EXL-123, "Component Function Check". |
| Headlamp auto aiming does not activate (AFS is normal) | | • Headlamp aiming motor power supply/ground/drive signal circuit<br>• Front combination lamp (Headlamp aiming motor)<br>• AFS control unit | Headlamp levelizer circuit<br>Refer to EXL-102, "Component Function Check". |
| AFS OFF indicator lamp is not turned ON | | • AFS OFF indicator lamp signal<br>• AFS control unit<br>• Combination meter | Combination meter<br>Data monitor “AFS OFF IND” |

# NORMAL OPERATING CONDITION

## Description

INFOID:0000000011460332

### LED HEADLAMP

- LED brightness and color may slightly change until the temperature becomes stable. This is not malfunction.
- Illumination time lag may occur between right and left. This is not malfunction.
- Brightness may be reduced due to aged deterioration of LED.

### AUTO LIGHT SYSTEM

The headlamp may not be turned ON/OFF immediately after passing dark area or bright area (short tunnel, sky bridge, shadowed area etc.) while using the auto light system. This causes for the control difference. This is normal.

# BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON

## Description

INFOID:0000000011460333

Both side headlamps (HI) are not turned ON when setting to the lighting switch HI or PASS.

## Diagnosis Procedure

INFOID:0000000011460334

### 1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to BCS-89, "Symptom Table".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning part.

### 2.CHECK HIGH BEAM REQUEST SIGNAL

With CONSULT

1. Turn ignition switch ON.
2. Select “HL HI REQ” in “Data Monitor” mode of “IPDM E/R” using CONSULT.
3. With operating the lighting switch, check the monitor status.

| Monitor item | Condition | | Monitor status |
|---|---|---|---|
| HL HI REQ | Lighting switch (2ND) | HI or PASS | On |
| | | LO | Off |

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".
NO >> Replace BCM. Refer to BCS-91, "Removal and Installation".

# BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

## Description

INFOID:0000000011460335

Both side headlamps (LO) are not turned ON in any condition.

## Diagnosis Procedure

INFOID:0000000011460336

### 1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to BCS-89, "Symptom Table".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning part.

### 2.CHECK LOW BEAM REQUEST SIGNAL

With CONSULT

1. Turn ignition switch ON.
2. Select “HL LO REQ” in “Data Monitor” mode of “IPDM E/R” using CONSULT.
3. With operating the lighting switch, check the monitor status.

| Monitor item | Condition | | Monitor status |
|---|---|---|---|
| HL LO REQ | Lighting switch | 2ND | On |
| | | OFF | Off |

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".
NO >> Replace BCM. Refer to BCS-91, "Removal and Installation".

# PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS ARE NOT TURNED ON

## Description

INFOID:0000000011460337

The parking, license plate and tail lamps are not turned ON in any condition.

## Diagnosis Procedure

INFOID:0000000011460338

### 1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to BCS-89, "Symptom Table".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning part.

### 2.CHECK POSITION LIGHT REQUEST SIGNAL

With CONSULT

1. Select “TAIL & CLR REQ” in “Data Monitor” mode of “IPDM E/R” using CONSULT.
2. With operating the lighting switch, check the monitor status.

| Monitor item | Condition | | Monitor status |
|---|---|---|---|
| TAIL & CLR REQ | Lighting switch | 1ST | On |
| | | OFF | Off |

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".
NO >> Replace BCM. Refer to BCS-91, "Removal and Installation".

# BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

## Description

INFOID:0000000011460339

Both side front fog lamps are not turned ON in any condition.

## Diagnosis Procedure

INFOID:0000000011460340

### 1.COMBINATION SWITCH INSPECTION

Check combination switch. Refer to BCS-89, "Symptom Table".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning part.

### 2.CHECK FRONT FOG LIGHT REQUEST SIGNAL

With CONSULT

1. Turn power switch ON.
2. Select “FR FOG REQ” in “Data Monitor” mode of “IPDM E/R” using CONSULT.
3. With operating the front fog lamp switch, check the monitor status.

| Monitor item | Condition | | Monitor status |
|---|---|---|---|
| FR FOG REQ | Front fog lamp switch (With lighting switch 1ST) | ON | On |
| | | OFF | Off |

Is the inspection result normal?

YES >> Perform the front fog lamp diagnosis. Refer to EXL-115, "Component Function Check".
NO >> Replace BCM. Refer to BCS-91, "Removal and Installation".

# PERIODIC MAINTENANCE

## HEADLAMP AIMING ADJUSTMENT

### Description

INFOID:0000000011516233

#### PREPARATION BEFORE ADJUSTING

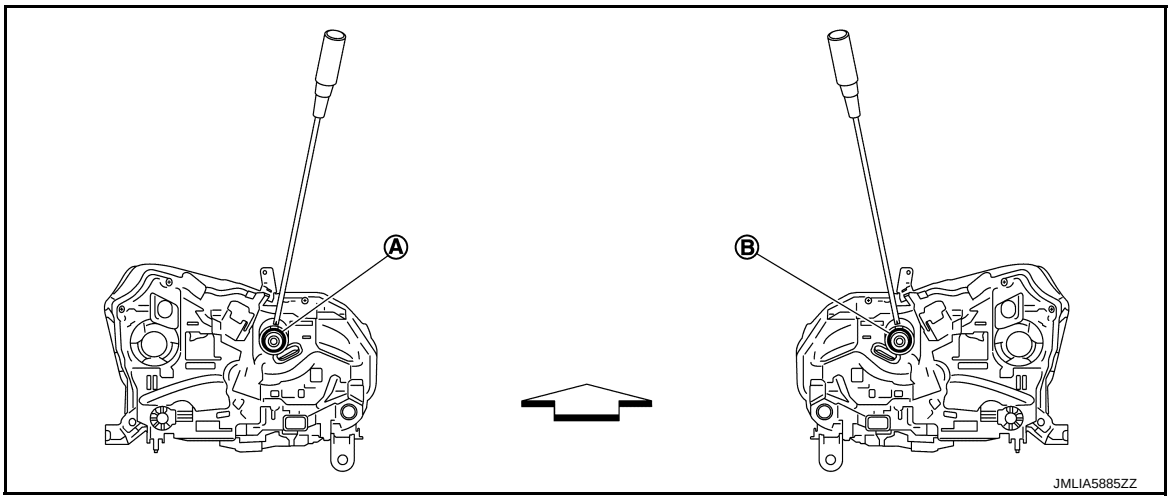
**NOTE:**

- For details, refer to the regulations in your own country.
- Perform aiming if the vehicle front body has been repaired and/or the headlamp assembly has been replaced.

Before performing aiming adjustment, check the following.

- Adjust the tire pressure to the specification.
- Fill with fuel, engine coolant and each oil.
- Maintain the unloaded vehicle condition. (Remove luggage from the passenger compartment and the luggage room.)
  **NOTE:**
  Do not remove the temporary tire, jack and on-vehicle tool.
- Wipe out dirt on the headlamp.
  **CAUTION:**
  **Never use organic solvent (thinner, gasoline etc.)**
- Ride alone on the driver seat.

#### AIMING ADJUSTMENT SCREW




A. Headlamp LH (UP/DOWN) adjustment screw B. Headlamp RH (UP/DOWN) adjustment screw

⇦ : Vehicle front

**NOTE:**
The figure is the vehicle without AFS. Each adjustment screw is applied to the vehicle with AFS.

| Adjustment screw | | Screw driver rotation | Facing direction |
|---|---|---|---|
| A | Headlamp LH (UP/DOWN) | Clockwise | DOWN |
| | | Counterclockwise | UP |
| B | Headlamp RH (UP/DOWN) | Clockwise | DOWN |
| | | Counterclockwise | UP |

### Aiming Adjustment Procedure

INFOID:0000000011516234

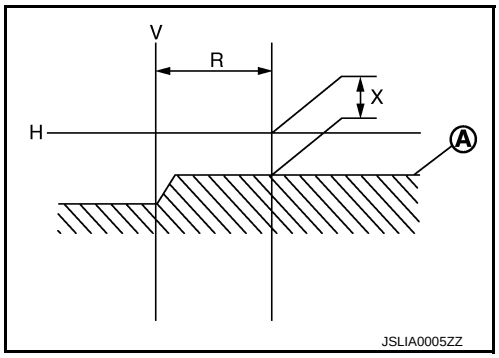
1. Place the screen.
   **NOTE:**

- Stop the vehicle facing the wall.
- Place the board on a plain road vertically.

2. Face the vehicle with the screen. Maintain 10 m (32.8 ft) between the headlamp center and the screen.
3. Turn ignition switch ON. Turn the headlamp (LO) ON.
   **CAUTION:**
   **Never cover lens surface with a tape etc. The lens is made of resin.**
   **NOTE:**
   Shut off the headlamp light with the board to prevent from illuminating the adjustment screen.
4. Measure the distance (X) between the horizontal center line of headlamp (H) and the cut off line (A) within the light axis measurement range (R) from the vertical center line ahead of headlamp (V).

**Light axis measurement range (R) : 350 – 175 mm (13.78 – 6.89 in)**

Low beam distribution on the screen

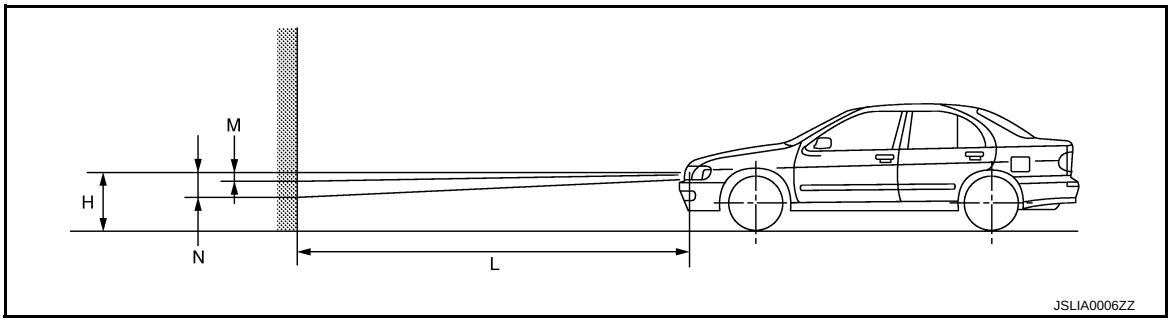



5. Adjust the cutoff line height (X) with the aiming adjustment screw so as to enter in the adjustment range (M–N) according to the horizontal center line of headlamp (H).

unit: mm (in)

| Horizontal center line of headlamp (H) | Highest cutoff line height (M) | Lowest cutoff line height (N) |
|---|---|---|
| 700 (27.56) or less | 4 (0.16) | 30 (1.18) |
| 701(27.60) – 800 (31.50) | 4 (0.16) | 30 (1.18) |
| 801 (31.54) or more | 17 (0.67) | 44 (1.73) |

Side view




**Distance between the headlamp center and the screen (L) : 10 m (32.8 ft)**

# FRONT FOG LAMP AIMING ADJUSTMENT

## Description

INFOID:0000000011516235

### PREPARATION BEFORE ADJUSTING

**NOTE:**

- For details, refer to the regulations in your own country.
- Perform aiming if the vehicle front body has been repaired and/or the headlamp assembly has been replaced.

Before performing aiming adjustment, check the following.

- Adjust the tire pressure to the specification.
- Fill with fuel, engine coolant and each oil.
- Maintain the unloaded vehicle condition. (Remove luggage from the passenger compartment and the trunk room.)
  **NOTE:**
  Do not remove the temporary tire, jack and on-vehicle tool.
- Wipe out dirt on the headlamp.
  **CAUTION:**
  **Never use organic solvent (thinner, gasoline etc.)**
- Ride alone on the driver seat.

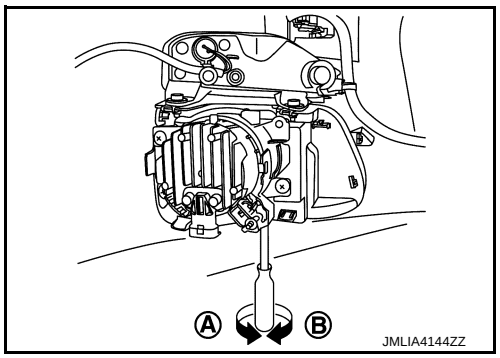
### AIMING ADJUSTMENT SCREW

- Turn the aiming adjusting screw for adjustment.

  A: DOWN

  B: UP

- For the position and direction of the adjusting screw, refer to the figure.
  **NOTE:**
  A screwdriver or hexagonal wrench [6 mm (0.24 in)] can be used for adjustment.



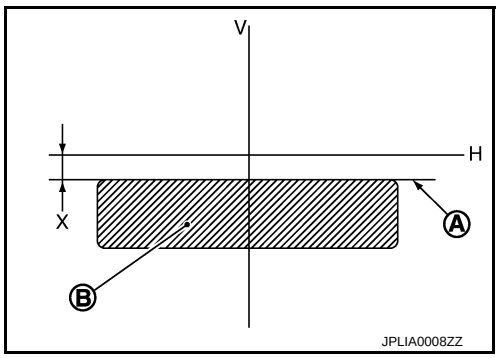
JMLIA4144ZZ

## Aiming Adjustment Procedure

INFOID:0000000011516236

1. Place the screen.
   **NOTE:**
   - Stop the vehicle facing the wall.
   - Place the board on a plain road vertically.
2. Face the vehicle with the screen. Maintain 10 m (32.8 ft) between the front fog lamp center and the screen.
3. Start the engine. Turn the front fog lamp ON.
   **NOTE:**
   Shut off the headlamp light with the board to prevent from illuminating the adjustment screen.
   **CAUTION:**
   **Never cover the lens surface with a tape etc. The lens is made of resin.**
4. Adjust the cutoff line height (A) with the aiming adjustment screw so that the distance (X) between the horizontal center line of front fog lamp (H) and (A) becomes 100 mm (3.94 in).

Front fog lamp light distribution on the screen




A : Cutoff line
B : High illuminance area
H : Horizontal center line of front fog lamp
V : Vertical center line of front fog lamp
X : Cutoff line height

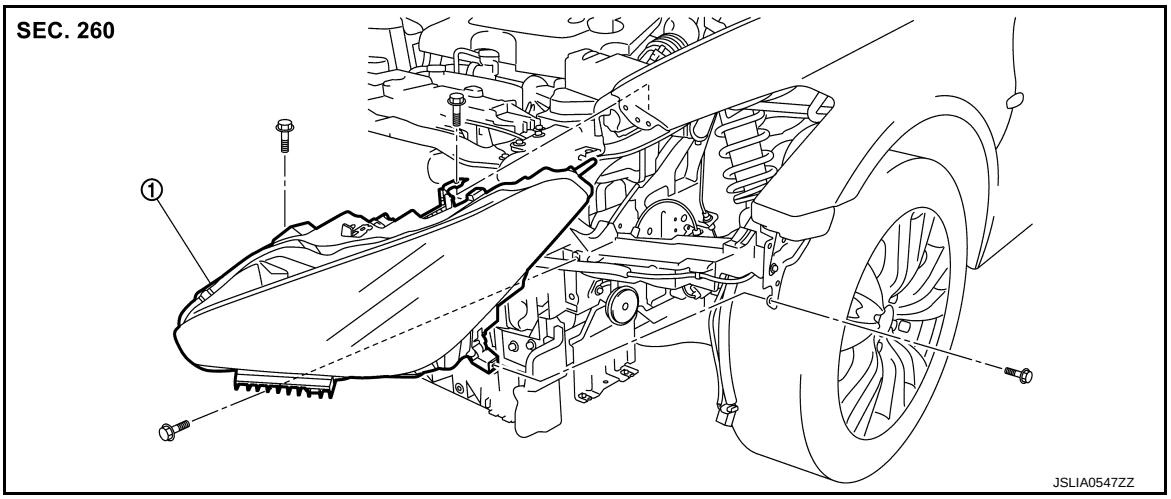
# REMOVAL AND INSTALLATION

## FRONT COMBINATION LAMP

### Exploded View

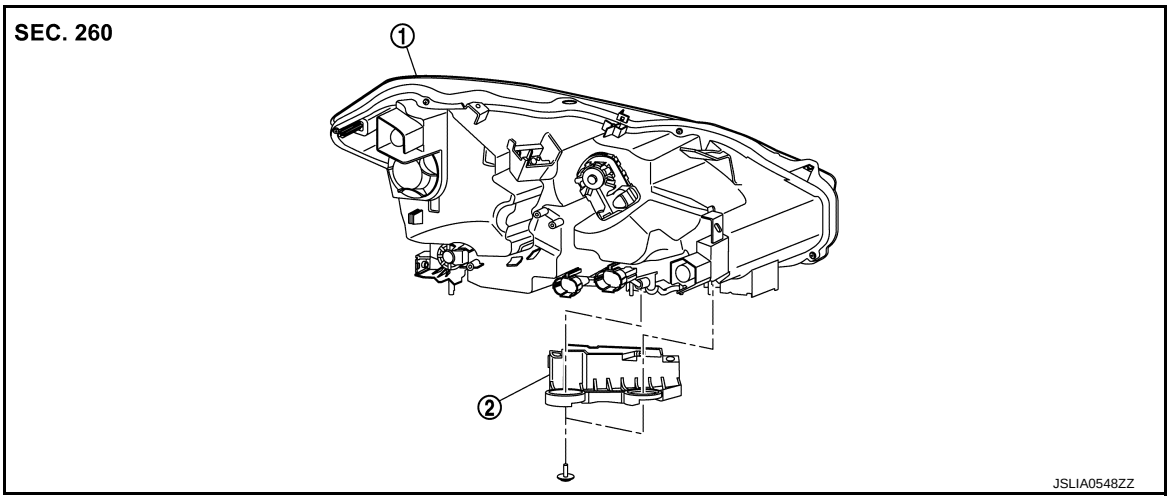
INFOID:0000000011515978

REMOVAL




1. Front combination lamp

DISASSEMBLY




1. Front combination lamp housing
2. Bumper bracket

### Removal and Installation

INFOID:0000000011515979

REMOVAL

**CAUTION:**

**Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

1. Remove front bumper fascia. Refer to EXT-16, "Removal and Installation".
2. Remove the washer inlet tube (RH side only).
3. Remove front combination lamp assembly mounting bolts.
4. Remove the harness clip.

5. Pull out the front combination lamp assembly forward the vehicle, and then disconnect the connector before removing the front combination lamp assembly.

### INSTALLATION

Note the following item, and then install in the reverse order of removal.

**NOTE:**

After installation, perform aiming adjustment. Refer to EXL-133, "Aiming Adjustment Procedure".

## Replacement

INFOID:0000000011515980

**CAUTION:**

**Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

### HEADLAMP (HI/LO)

**CAUTION:**

**Replacement of a single part is not possible due to the adoption of LED. For replacement, replace front combination lamp as a set. Refer to EXL-137, "Removal and Installation".**

### DAYTIME RUNNING LIGHT/ PARKING LAMP

**CAUTION:**

**Replacement of a single part is not possible due to the adoption of LED. For replacement, replace front combination lamp as a set. Refer to EXL-137, "Removal and Installation".**

### FRONT SIDE MARKER LAMP

**CAUTION:**

**Replacement of a single part is not possible due to the adoption of LED. For replacement, replace front combination lamp as a set. Refer to EXL-137, "Removal and Installation".**

## Disassembly and Assembly

INFOID:0000000011515981

### DISASSEMBLY

Remove bumper bracket mounting screws, and then remove bumper bracket from front combination lamp housing.

### ASSEMBLY

Note the following item, and then install in the reverse order of removal.

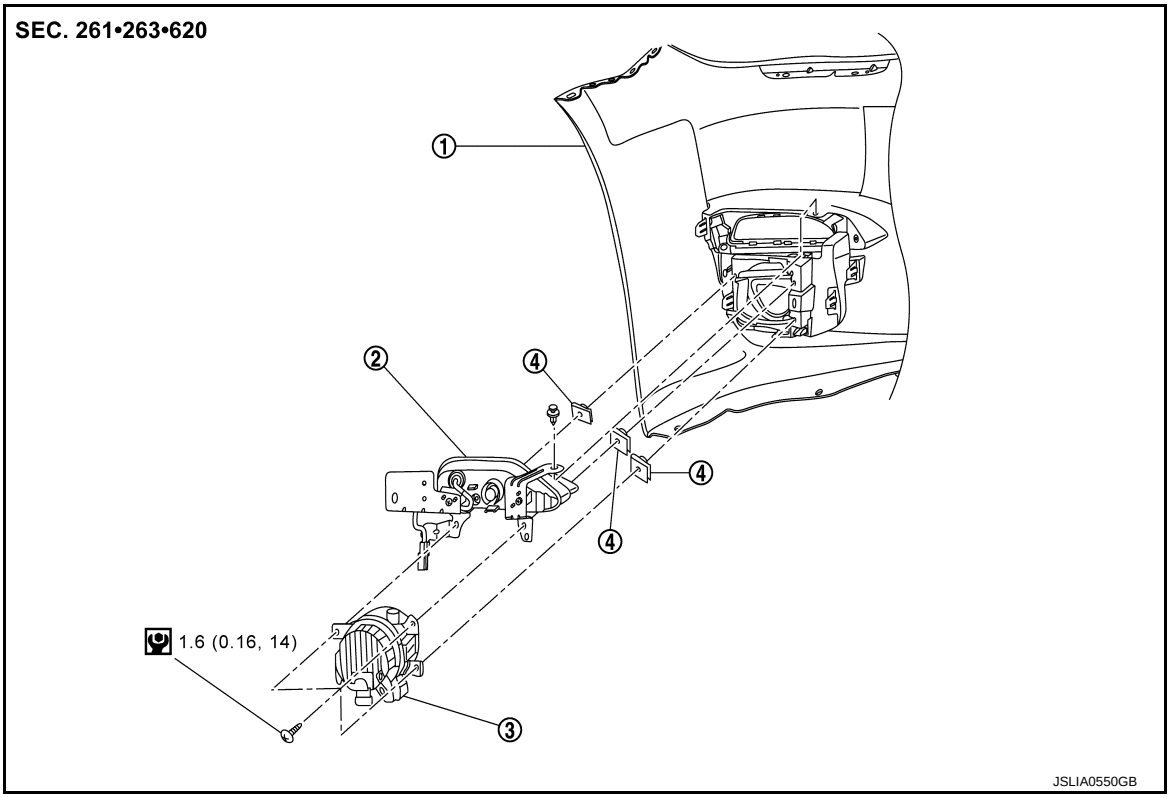
**CAUTION:**

**After installation, perform aiming adjustment. Refer to EXL-133, "Aiming Adjustment Procedure".**

# FRONT TURN SIGNAL LAMP ASSEMBLY

## Exploded View

INFOID:0000000011515970




1. Front bumper fascia
2. Front turn signal lamp
3. Front fog lamp
4. U nut

: N·m (kg-m, in-lb)

## Removal and Installation

INFOID:0000000011515971

### REMOVAL

**CAUTION:**

**Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

1. Remove front fender protector to make work space. Refer to EXT-26, "FENDER PROTECTOR : Removal and Installation".
2. Remove front fog lamp. Refer to EXL-141, "Removal and Installation".
3. Disconnect front turn signal lamp harness connector.
4. Remove front turn signal lamp fixing clip and then remove front turn signal lamp.

### INSTALLATION

Install in the reverse order of removal.

## Replacement

INFOID:0000000011515972

**CAUTION:**

**Disconnect the battery negative terminal or remove power circuit fuse when performinng the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

### FRONT TURN SIGNAL LAMP

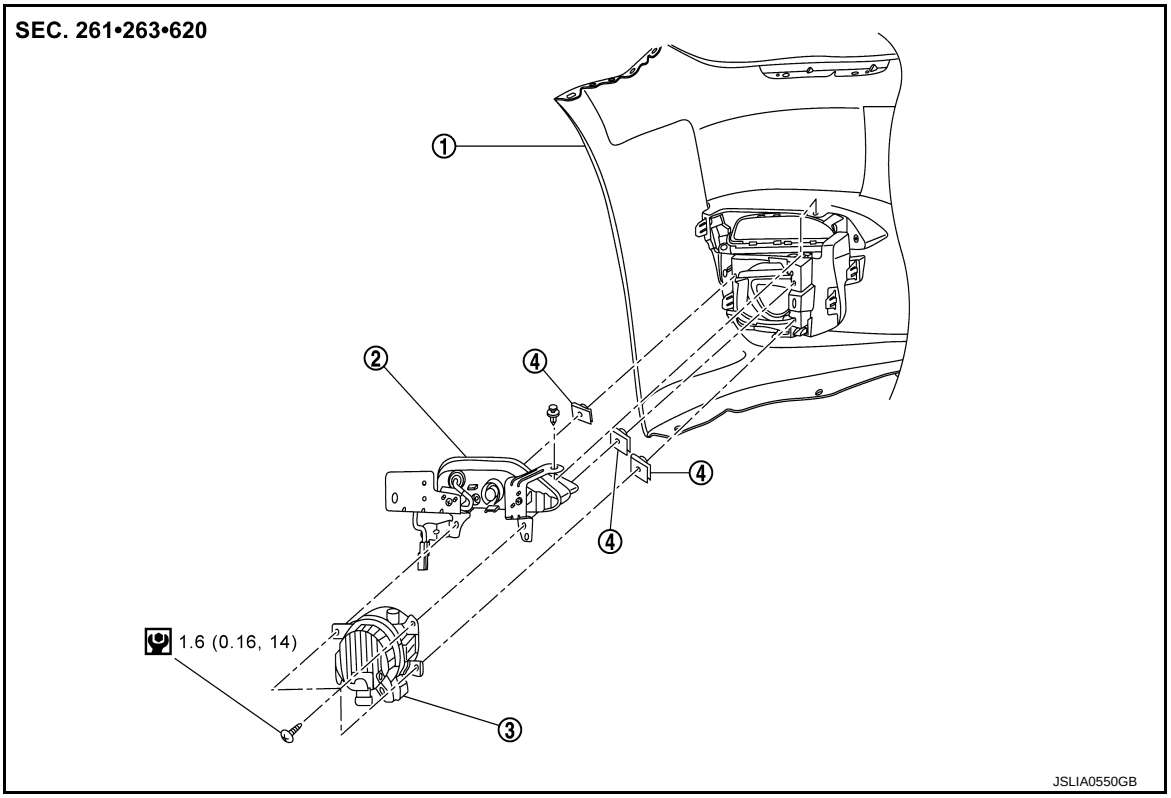
**CAUTION:**

**Replacement of a single part is not possible due to the adoption of LED bulb. For replacement, replace front turn signal lamp assembly as a set. Refer to EXL-139, "Removal and Installation".**

# FRONT FOG LAMP

## Exploded View

INFOID:0000000011515983




1. Front bumper fascia
2. Front turn signal lamp
3. Front fog lamp
4. U nut

: N·m (kg-m, in-lb)

## Removal and Installation

INFOID:0000000011515984

**CAUTION:**
**Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

### REMOVAL

1. Remove front fender protector to make work space. Refer to EXT-26, "FENDER PROTECTOR : Removal and Installation".
2. Disconnect front fog lamp connector.
3. Remove front fog lamp fixing screws and then remove front fog lamp.

### INSTALLATION

Note the following item, and then install in the reverse order of removal.

**NOTE:**
After installation, perform aiming adjustment. Refer to EXL-135, "Aiming Adjustment Procedure".

## Replacement

INFOID:0000000011515985

**CAUTION:**
**Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

### FRONT FOG LAMP

**CAUTION:**

**Replacement of a single part is not possible due to the adoption of LED bulb. For replacement, replace front fog lamp assembly as a set. Refer to EXL-141, "Removal and Installation".**

# SIDE TURN SIGNAL LAMP

## Exploded View

INFOID:0000000011890806

Refer to MIR-41, "Exploded View".

## Removal and Installation

INFOID:0000000011890804

Refer to MIR-42, "DOOR MIRROR : Disassembly and Assembly".

## Replacement

INFOID:0000000011890805

**CAUTION:**
**Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

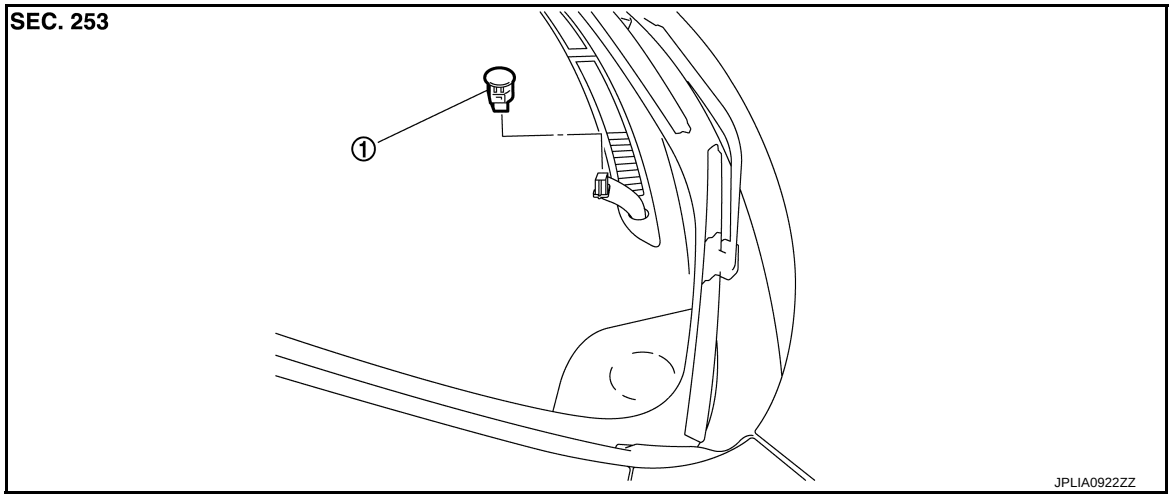
SIDE TURN SIGNAL LAMP

**CAUTION:**
**Replacement of a single part is not possible due to the adoption of LED. For replacement, replace side turn signal lamp as a set. Refer to EXL-143, "Removal and Installation".**

# OPTICAL SENSOR

## Exploded View

INFOID:0000000011256336




1. Optical sensor

## Removal and Installation

INFOID:0000000011256337

### REMOVAL

1. Insert an appropriate tool between the optical sensor and the instrument upper panel. Pull out the optical sensor upward.
2. Disconnect the optical sensor connector. And then remove the optical sensor.

### INSTALLATION

Install in the reverse order of removal.

# LIGHTING AND TURN SIGNAL SWITCH

## Exploded View

INFOID:0000000011256338

Lighting and turn signal switch is integrated in the combination switch. BCS-92, "Removal and Installation".

# HAZARD SWITCH

## Exploded View

INFOID:0000000011256339

The hazard warning switch is integrated in the multifunction switch. Refer to AV-137, "Removal and Installation".

# AFS SWITCH

## Exploded View

INFOID:0000000011890815

Refer to MWI-95, "Exploded View".

## Removal and Installation

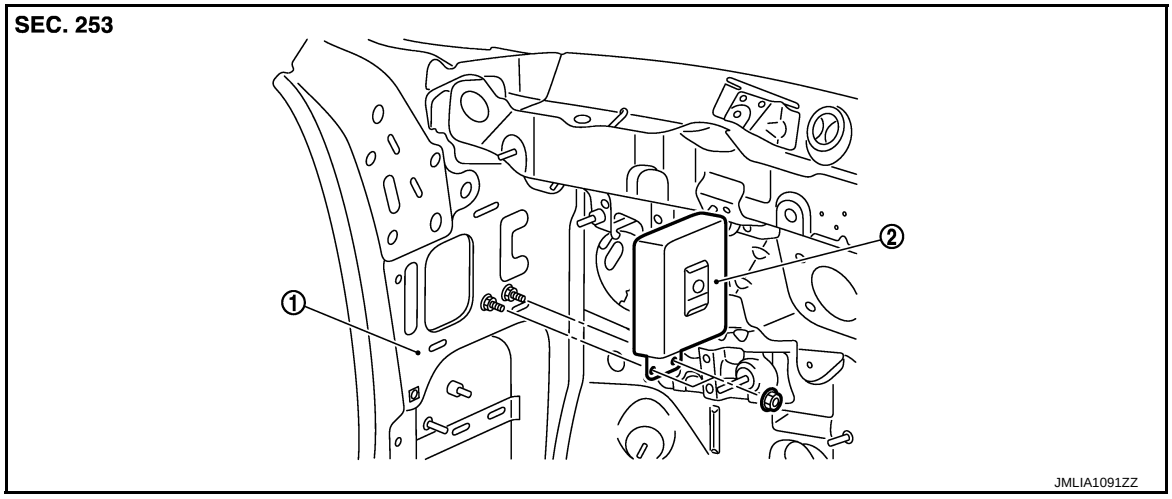
INFOID:0000000011890814

Refer to MWI-95, "Removal and Installation".

# AFS CONTROL UNIT

## Exploded View

INFOID:0000000011256340




1. Dash side panel
2. AFS control unit

## Removal and Installation

INFOID:0000000011256341

### REMOVAL

**CAUTION:**

- **Before replacing AFS control unit, perform “READ CONFIGURATION” to save or print current vehicle specification. Refer to EXL-76, "Description".**
- **Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

1. Remove the instrument lower panel LH. Refer to IP-13, "Removal and Installation".
2. Remove the AFS control unit mounting nuts.
3. Disconnect the AFS control unit connector.
4. Remove the AFS control unit.

### INSTALLATION

Install in the reverse order of removal.

**CAUTION:**

- **Be sure to perform “WRITE CONFIGURATION” when replacing AFS control unit. Or not doing so, AFS control function does not operate normally. Refer to EXL-76, "Work Procedure".**
- **Be sure to perform “SENSOR INITIALIZE” when replacing AFS control unit. Refer to EXL-78, "Description".**

# STEERING ANGLE SENSOR

## Removal and Installation

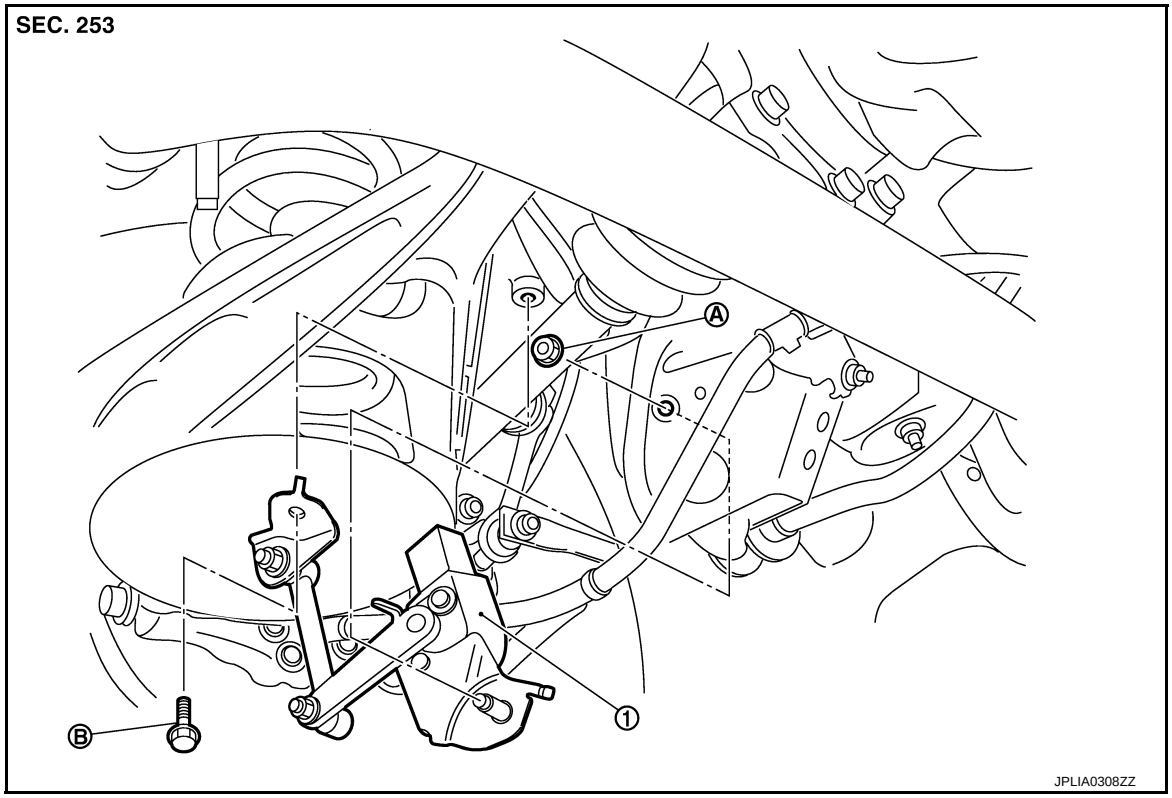
INFOID:0000000011256342

Refer to SR-14, "Removal and Installation".

# HEIGHT SENSOR

## Exploded View

INFOID:0000000011256343




1. Height sensor

A Height sensor mounting nut

B. Height sensor lever link bracket mounting bolt

## Removal and Installation

INFOID:0000000011256344

### REMOVAL

1. Remove the height sensor mounting nut.
2. Remove the height sensor lever link bracket mounting bolt.
3. Disconnect the height sensor connector.
4. Remove the height sensor.

### INSTALLATION

Install in the reverse order of removal.

**CAUTION:**

**Be sure to perform "SENSOR INITIALIZE" when removing the height sensor. Refer to EXL-78, "Description".**

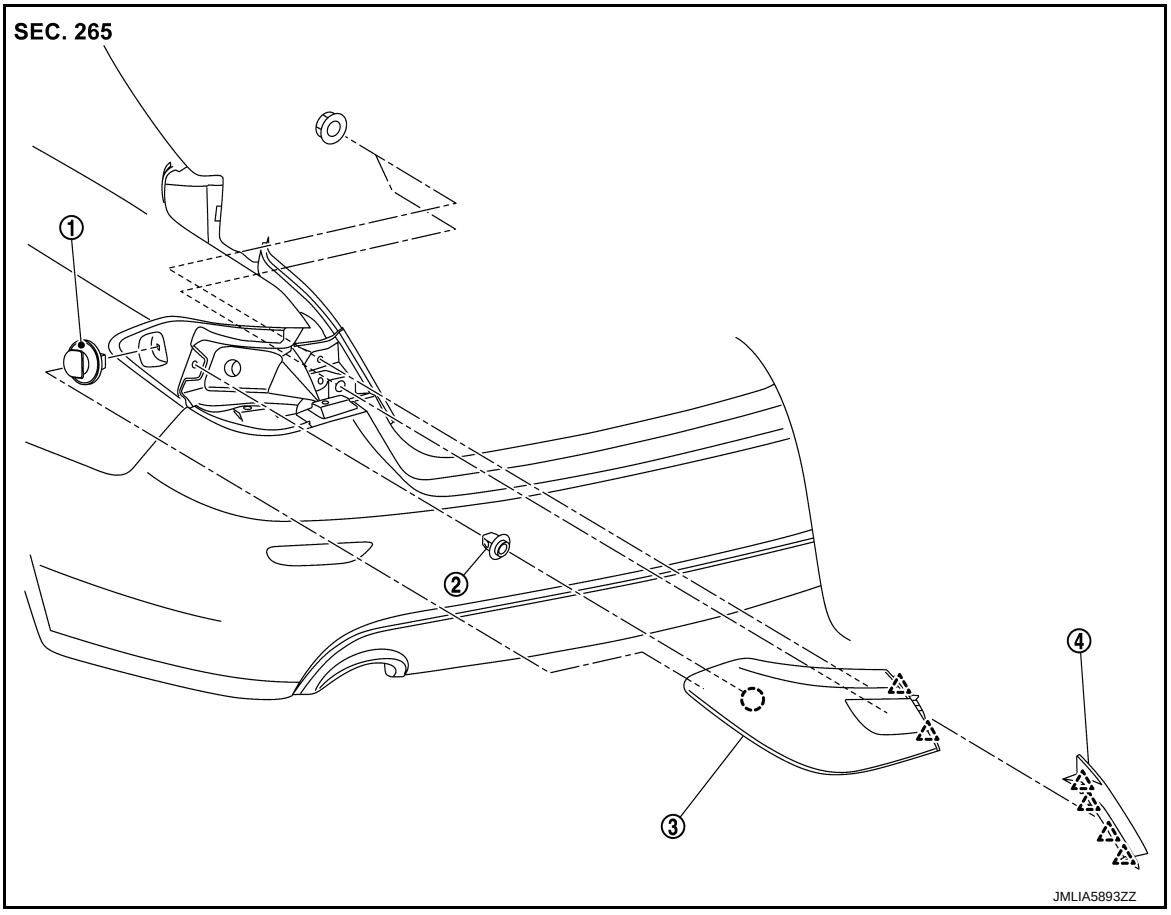
# REAR COMBINATION LAMP

## Exploded View

INFOID:0000000011256345

### REMOVAL

Rear Combination Lamp (body side)

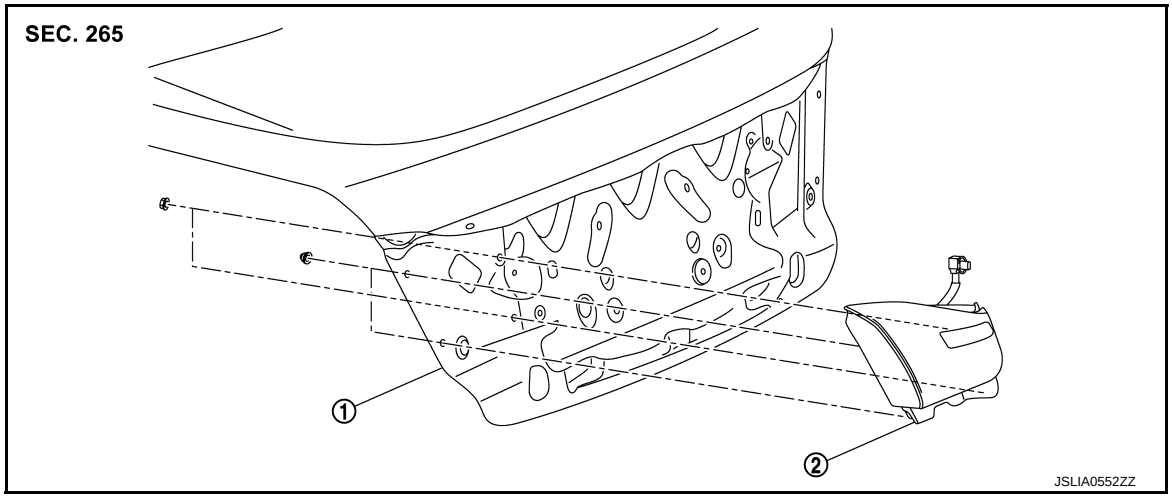



1. Grommet
2. Clip
3. Rear combination lamp (body side)
4. Rear combination lamp finisher

◌ : Clip

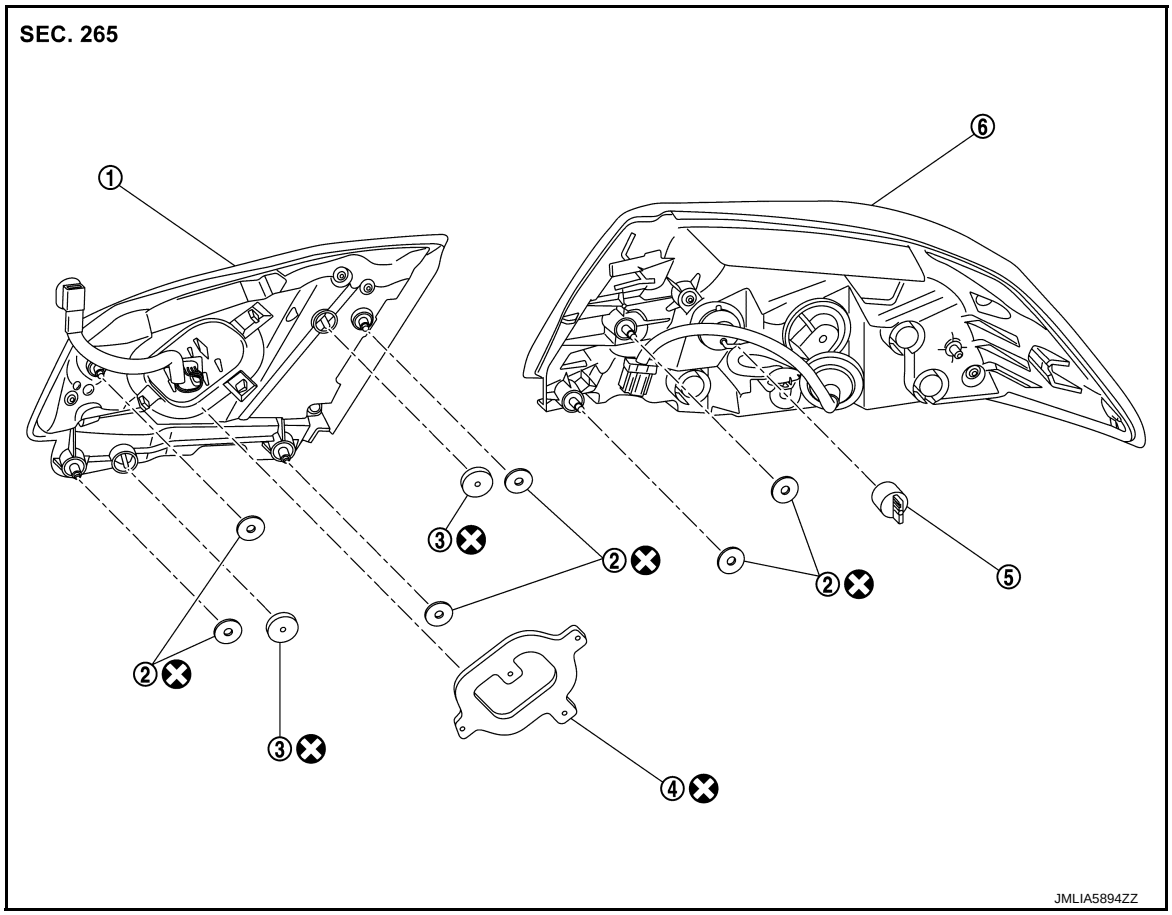
△ : Pawl

Rear Combination Lamp (trunk lid side)




1. Trunk lid assembly
2. Rear combination lamp (trunk lid side)

DISASSEMBLY




1. Rear combination lamp (trunk lid side)
2. Seal packing
3. Seal packing
4. Seal packing
5. Rear turn signal lamp
6. Rear combination lamp (body side)

⊗ : Always replace after every disassembly

## REAR COMBINATION LAMP (BODY SIDE)

## REAR COMBINATION LAMP (BODY SIDE) : Removal and Installation

INFOID:0000000011891145

**CAUTION:**
**Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

### REMOVAL

1. Fully open trunk lid.
2. Remove the trunk side finisher. Refer to INT-64, "TRUNK SIDE FINISHER : Removal and Installation".
3. Disconnect the rear combination lamp harness connector.
4. Remove the rear combination lamp mounting nuts.
5. Pull the rear combination lamp toward vehicle rear, and then remove the rear combination lamp.
6. Remove the seal packing.
7. Remove the rear combination lamp finisher after removing rear combination lamp.

### INSTALLATION

Note the following item, and then install in the reverse order of removal.

**CAUTION:**
**Seal packing can not be reused.**

## REAR COMBINATION LAMP (BODY SIDE) : Replacement

INFOID:0000000011891146

**CAUTION:**
- **Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**
- **Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it.**
- **Never touch bulb by hand while it is lit or right after being turned OFF.**
- **Never leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.**

### TAIL LAMP

**CAUTION:**
**Replacement of a single part is not possible due to the adoption of LED. For replacement, replace rear combination lamp assembly (body side) as a set. Refer to EXL-153, "REAR COMBINATION LAMP (BODY SIDE) : Removal and Installation".**

### STOP LAMP

**CAUTION:**
**Replacement of a single part is not possible due to the adoption of LED. For replacement, replace rear combination lamp assembly (body side) as a set. Refer to EXL-153, "REAR COMBINATION LAMP (BODY SIDE) : Removal and Installation".**

### REAR TURN SIGNAL LAMP

1. Remove the rear combination lamp (body side). Refer to EXL-153, "REAR COMBINATION LAMP (BODY SIDE) : Removal and Installation".
2. Rotate the rear turn signal lamp bulb socket counterclockwise and unlock it.
3. Remove the rear turn signal lamp bulb from rear turn signal lamp bulb socket.

### REAR SIDE MARKER LAMP

**CAUTION:**
**Replacement of a single part is not possible due to the adoption of LED. For replacement, replace rear combination lamp assembly (body side) as a set. Refer to EXL-153, "REAR COMBINATION LAMP (BODY SIDE) : Removal and Installation".**

# REAR COMBINATION LAMP (TRUNK LID SIDE)

## REAR COMBINATION LAMP (TRUNK LID SIDE) : Removal and Installation

INFOID:0000000011891147

**CAUTION:**
**Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

REMOVAL

1. Remove the trunk lid finisher. Refer to INT-64, "TRUNK SIDE FINISHER : Removal and Installation".
2. Disconnect the rear combination lamp harness connector.
3. Remove the rear combination lamp mounting nuts.
4. Pull the rear combination lamp toward vehicle rear, and then remove the rear combination lamp.
5. Remove the seal packing.

INSTALLATION

Note the following item, and then install in the reverse order of removal.

**CAUTION:**

**Seal packing cannot be reused.**

## REAR COMBINATION LAMP (TRUNK LID SIDE) : Replacement

INFOID:0000000011891148

**CAUTION:**

**Disconnect the battery negative terminal or remove power circuit fuse when performing the operation for preventing electric leakage. Refer to EXL-6, "Precautions for Removing Battery Terminal".**

TAIL LAMP

**CAUTION:**

**Replacement of a single part is not possible due to the adoption of LED. For replacement, replace rear combination lamp assembly (trunk lid side) as a set. Refer to EXL-153, "REAR COMBINATION LAMP (TRUNK LID SIDE) : Removal and Installation".**

BACK-UP LAMP

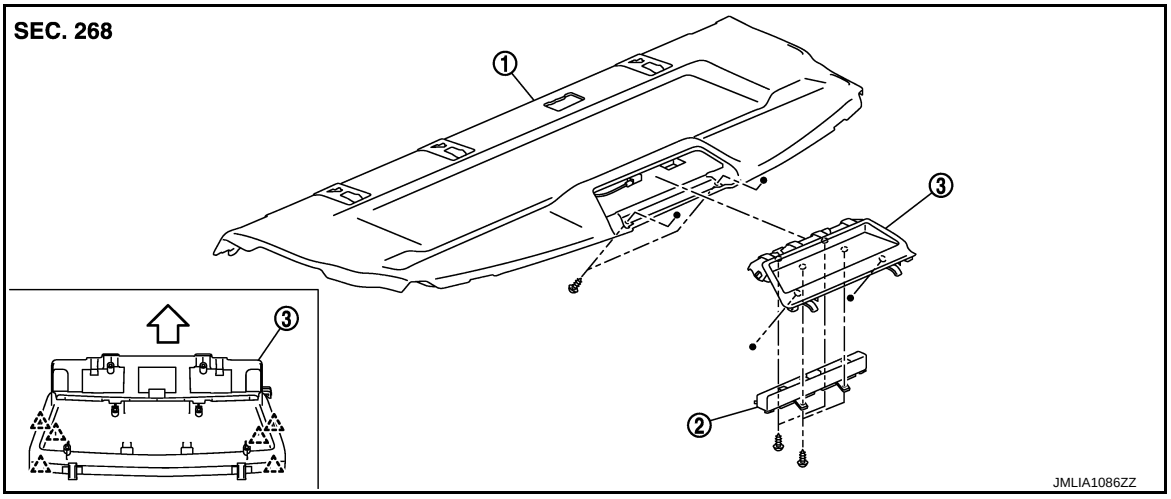
**CAUTION:**

**Replacement of a single part is not possible due to the adoption of LED. For replacement, replace rear combination lamp assembly (trunk lid side) as a set. Refer to EXL-153, "REAR COMBINATION LAMP (TRUNK LID SIDE) : Removal and Installation".**

# HIGH-MOUNTED STOP LAMP

## Exploded View

INFOID:0000000011256347




1. Rear parcel shelf finisher
2. High-mounted stop lamp
3. High-mounted stop lamp cover

⇦ : Vehicle front

△ : Pawl

## Removal and Installation

INFOID:0000000011256348

### REMOVAL

1. Remove the rear parcel shelf finisher. Refer to INT-53, "Removal and Installation".
2. Remove the high-mounted stop lamp cover fixing screws.
3. Remove the high-mounted stop lamp.

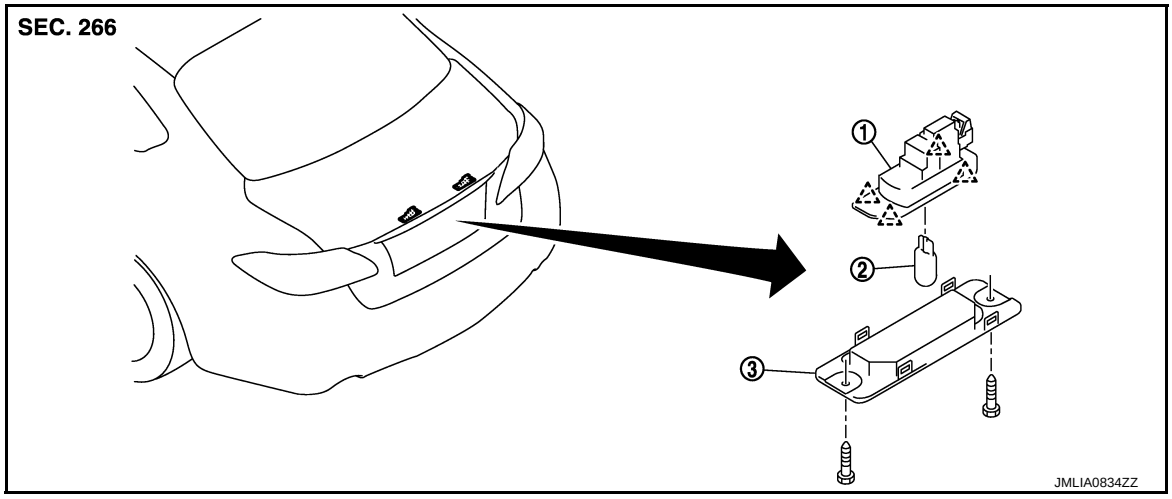
### INSTALLATION

Install in the reverse order of removal.

# LICENSE PLATE LAMP

## Exploded View

INFOID:0000000011256352




1. License plate lamp
2. License plate lamp bulb
3. License plate lamp lens

: Pawl

## Removal and Installation

INFOID:0000000011256353

**CAUTION:**
**Disconnect the battery negative terminal or remove the fuse.**

### REMOVAL

1. Remove the screw, and then remove the license plate lamp.
2. Disconnect the license plate lamp connector.

### INSTALLATION

Install in the reverse order of removal.

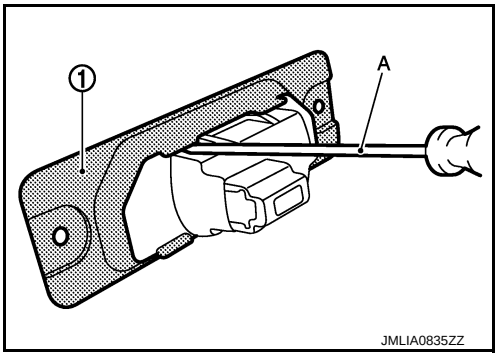
## Replacement

INFOID:0000000011256354

**CAUTION:**
- **Disconnect the battery negative terminal or remove the fuse to prevent electric leakage.**
- **Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it to prevent damage to the bulb.**
- **Never touch bulb by hand while it is lit or right after being turned off to prevent burns.**
- **Never leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.**

### LICENSE PLATE LAMP BULB

1. Remove the license lamp. Refer to EXL-156, "Removal and Installation".
2. Disengage license lamp lens (1) fixing pawls, with a flat-bladed screwdriver (A).
3. Remove the bulb.



# SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### Bulb Specifications

INFOID:0000000011256355

| Item | | Type | Wattage (W) |
|---|---|---|---|
| Front combination lamp | Headlamp (HI/LO) | LED | — |
| | Parking lamp/ daytime running light | | |
| | Parking lamp (upper side)/ daytime running light (upper side) | | |
| | Front side marker lamp | | |
| Front turn signal lamp | | LED | — |
| Front fog lamp | | LED | — |
| Side turn signal lamp (built in door mirror) | | LED | — |
| Rear combination lamp (body side) | Stop lamp | LED | — |
| | Tail lamp | LED | — |
| | Rear side marker lamp | LED | — |
| | Rear turn signal lamp | W21W | 21 |
| Rear combination lamp (trunk lid side) | Tail lamp | LED | — |
| | Back-up lamp | | |
| License plate lamp | | W5W | 5 |
| High-mounted stop lamp | | LED | — |